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Bundle Branch Block

(Review of Cases)

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SINCE these case reports apply to accidents to the cardiac mechanism, I think it is not out of place to review in brief the general mechanism of the heart beat, naming and locating generally the different structures involved in the cardiac cycle.

GENERAL CONSIDERATIONS

These special structures about which we are concerned consist of subendocardial specialized tissues that have to do with the beginning and transmission of the electrical impulses that precede and accompany each heart beat. The first structure of importance is the sino-auricular node. This is a comma-shaped mass of neuro-muscular and connective tissue lying just beneath the epicardium, at the junction of the superior vena cava and the right auricle. This mass of tissue receives inhibitory fibres from the vagus nerve on each side, but more from the right, and also fibres from the sympathetic, the accelerator. It gets its blood supply from the left coronary. The excitatory process originates in this sino-auricular node and for that reason it is often called the "pacemaker."

Fine fibres of specialized tissue, also neuromuscular and connective tissue in type, beginning in the right side of the interauricular septum, near the coronary sinus, unite and form another node which was described by Aschoff and Tawara, and which carries sometimes that name but is generally designated as the junctional or auriculoventricular node. These fine fibres are interlaced with nerve fibres, ganglion cells, arterioles and connective tissue. From the junctional node, extending horizontally forward and slightly downward for a distance of about 2 cm., in the right side of the interauricular septum, is the bundle of His, or the A. V. bundle. This is sharply demarcated and is made up of large fusiform cells in parallel arrangement and ensheathed in a bundle. This bundle of His continues to the junction of the interauricular septum with the triangular membranous portion of the intraventicular septum. At this point the bundle of His divides into a right and left branch and splits across the interventricular system. These branches are termed respectively *right* and *left* bundle branches.

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The right bundle branch extends as a single bundle to the base of the anterior papillary muscle and there breaks up rapidly and spreads out beneath the entire endocardium as the Purkinje network of the right ventricle. The left bundle branch goes through the membranous portion of the interventricular septum, divides immediately just beneath the left ventricular endocardium, just below the junction of the right anterior and posterior cusps, into two main groups of fibres, one of which goes to the base of the anterior and one to the base of the posterior papillary muscle. From these points the branches break up into the Purkinje network of the left ventricle.

It is well to note here that while the vagus sends fibres to the S. A. node, the A. V. node, and the bundle of His, there are apparently no vagus branches extending past the point of division of the bundle of His into the bundle branches. As I stated before, the physiology of the initiation and spread of the impulse of the heart beat is closely associated with these structures, and this constitutes the basis of electrocardiography. The theory is that there is in these specialized tissues, as well as in the ordinary heart muscle, a constant building up and discharging of physiochemical combinations which cause a distinct change in the electric potential in these different parts. This process occurs apparently at a constant rate, and the accumulation rises to a constant level where it is then touched off or discharged. It then falls to the previous low level, liberating a kinetic energy of contraction. Since the S. A. node is capable of a faster rate of building up and discharging, it naturally falls into the role of control or pacemaker. The hydrogen concentration and temperature of the blood and of these specalized tissues have been shown to be closely associated with the rate of initiation and spread of the impulses. So then we have an impulse generating in the S. A. node, passing through the muscles of the auricles, gathering in the specialized tissue which forms the A. V. node, and passing through this node into the bundle of His, then following into the bundle branches and through their divisions into the final Purkinje network to the ventricular muscles.

Let us suppose that an impulse starts normally at the S. A. node, travels down across the auricles,

continues down the A. V. node and bundle of His, but is blocked in the right or left bundle branch. If the block occurs in the right branch the impulse travels on down the left branch, spreads over the left ventricle normally and causes a normal contraction on that part. The impulse is conveyed to the right ventricle in a circuitous route, probably through the interventricular septum, and causes a delayed contraction. If the left bundle branch is blocked, which is much more common, the reversal of this procedure takes place. It is estimated that impulses travel through the specialized conducting mechanism at a rate of about 5,000 m.m. per second, and through the ordinary heart muscle at about 500 m.m. per second, so we can see there is an appreciable pause between the contraction of the ventricle where there is no block and the one where there is an interference with normal conduction.

Left bundle branch block is not uncommon in general practice, being much more frequent than right bundle branch block, in accord with the frequency of disease of the left ventricle as compared with the right. It is found for the most part in patients with regular rythm, and for that reason it is difficult to recognize without the help of an electrocardiogram. It is possible, however, to suspect its presence on account of one or two fairly common physical signs. Whenever a diastolic gallop rhythm is heard the condition should be suspected, due to our knowledge of the delay in contraction of one ventricle over the other. At times a bifurcated first sound at the apex can be picked up. And, also, pulsus alternans is very common in these cases, and if this condition cannot be detected by radial pulse palpation, it can be easily picked up by the sphygmomanometer. In fact, the frequent association of bundle branch block, gallop rhythm, and pulsus alternans makes it useful to suspect the presence of one if the other two are noted.

ETIOLOGY OF BLOCK

The commonest cause of bundle branch block is coronary sclerosis. This may be an accident to one of the larger arteries or to the small branch supplying the bundle directly. This may be a gradual leading to faulty nutrition and an eventual fibrosis, or it may be sudden. At autopsy it is extremely difficult to tell which of the main branches are at fault because the general appearance of the two are apt to be identical in the old sclerosis cases. It must be remembered, however, that only a few undamaged fibres can carry the excitatory impulse.

Next in importance is hypertension with hypertrophy or dilatation. This condition, in turn, interferes with proper blood supply to the fibres. Less common causes are: syphilitic infection, gummatous or diffuse; acute infection, the chief one of which is diphtheria; rheumatic fever, and bacterial endocarditis. It has been noted in a transient or functional form as a result of toxicity in digitalis or quinidine therapy.

Males show bundle branch block in a ratio of about 3:1 over females, due to the greater liklihood of coronary disease in the male. It is usually found in persons over 50, but two out of my three cases are in women, and both are considerably under 50 years of age.

CLINICAL ASPECTS

There are no symptoms arising directly from the condition. Attendant symptoms are due to the diseased condition of the heart and are usually found in the form of those of angina pectoris, congestive failure, and palpitation due to other arrhythmias. I have mentioned signs before, but I might say in addition that while cardiac enlargement is frequent, valvular disease is infrequent. X-ray, of course, is without value as a diagnostic aid.

Authors vary in their opinion concerning the prognosis of this conditon. Of course, the condition itself is never fatal, but its appearance is of grave prognostic significance. Right bundle branch block is not nearly as common as left, and is more apt to be functional and without as marked portent as the latter. White says bundle branch block may be entirely unimportant in rare cases, occurring as a more or less transient effect of vagal stimulation, or of fatigue in excessive tachycardia. He also states that although the prognosis is to be based partly on other evidence of heart disease, the finding of true bundle branch block of high degree makes the prognosis always a serious one, the average duration of life after its discovery is not more than a few years. Levine also states that the average length of life after its discovery is usually but a year or two, but there are exceptional cases that carry on fairly satisfactorily for many years. Herrmann states that the presence of bundle branch block is of serious prognostic significance.

All authors agree that there is no specific treatment for bundle branch block, as it does not by itself produce any handicap. It merely reflects the condition of the heart muscle and therapy is directed at the general state of circulation.

It must be remembered that there are conditions of delayed impulse without complete block in the bundle branch, and there are cases of interruption of conduction in the smaller branches and Purkinje network. These give, to the varying degree, the same electrocardiographic findings as complete bundle branch block, and the clinical implications of incomplete bundle branch block and arborization or Purkinje network block are similar to that of complete bundle branch block. Occasionally this condition will be found when there is little else to lead one to suspect heart disease, and in that way it becomes a help diagnostically. In fact, I quote Levine, "The greatest value of electrocardiography is in the detection of significant abnormalities in the ventricular complexes when the rest of the examination is essentially negative."

CASE REPORTS

Case No 1. Male, age 52. Patient first consulted me on March 29, 1938. His chief complaint was that he had attacks of dizziness and suffered from shortness of breath. This man was short and fat; full-blooded type. His pulse rate was 86.

Blood pressure, 190/126. There was moderate edema of the feet and ankles. Liver was moderately enlarged. The second aortic sound was accentuated. Percussion indicated the heart was enlarged to the left. Electrocardiogram was made on this patient and showed the following: QRS interval was 0.12. QRS was notched in all leads. Relation of the QRS with the T waves in leads I and III indicated a bundle branch block.

This patient was put on a reducing diet and reduced his weight from 205 to 176. He was put on digitalis—1 cat unit 3 times a day for 6 days and then 1 cat unit a day for a period of about 5 weeks. At the same time he was put on aminophyllin, grains 1½, night and morning.

I have seen this patient at intervals of very 6 weeks to 2 months since he first consulted me, and as long as he keeps his weight down and doesn't try to overdo he feels very well. Two tracings made since the first one show no appreciable change.

Case No. 2. Female, age 42. Patient first consulted me on December 18, 1937. Her chief complaint was headaches and dizziness. Examination showed her heart to be enlarged in all dimensions. Pulse rate was 80. Gallop rhythm was present and there was re-duplication of the first sound at the apex. Her history showed that she had been told some 5 years previously, when being examined for insurance, that she had high blood pressure. Application wasn't sent in. Has felt well ever since until about 3 months ago when the headaches and dizzy spells started. Her family physician told her she had high blood pressure, but did not institute any treatment. Examination showed there was no edema and no enlargement of the liver. No pulmonary congestion. Her blood pressure when I first examined her was 209/160. She stated, however, that it had been running higher than that and seemed quite gratified that it was down that low. She was complaining at the time of some pain in the chest, over the precordium.

Electrocardiogram showed a left bundle branch block. I put this patient on some capsules containing 1/8 gr. phenobarbital, 4 grs. acetanilid and ½ gr. theophyllin. She returned to me in 2 weeks, having obtained no relief. At that time I put her on nitro-cyanates compound, 1 teaspoonful 3 times a day. At the end of 10 days her blood pressure had dropped to an average of 180/130 and she was feeling much better. I had kept her on modified rest during this time and I advised her to return to her home and keep up the nitro-cyanates compound at intervals and to return to me in about 3 months. When she came back she said that all of her symptoms had returned. Her blood pressure was ranging around 190. I then put her on aminophyllin, grs. 1½, twice daily. She returned to me again in about 2 weeks and her blood pressure was 175, her headaches were gone, and her nervousness and apprehension had disappeared. I had a letter from her a few days ago, in Georgia, and she says she is doing very nicely and not having any trouble with the headaches.

Case No. 3. Female, age 40. Patient first consulted me May 19, 1939. This lady has been under my brother's care for tuberculosis for 3½ years. This was her second breakdown, the first one having been about 12 or 14 years ago, at which time she said she had some heart troube also. She was considerably overweight, and her chief complaint was shortness of breath with pain in the chest and palpitation. Examination showed bifurcated or re-duplication of the first sound at the apex. Blood pressure was 180/100. She had a soft blowing murmur over the mitral area, systolic in time. The second aortic sound was loud and tambour-like. Percussion showed the heart enlarged about 2 cm. to the left. Electrocardiogram showed a left bundle branch block.

She was put on a diet to reduce her weight and was kept on a rather rigid reducing diet for about 4 weeks, during which time she lost about 12 pounds. During that time she was taking aminophyllin, grs. 1½, twice daily. She returned to me on July 29, 1939, at which time her blood pressure was 168/100, and her weight 129½, as compared to 145 when I first saw her. She was very comfortable, the pain in her abdomen had gone, and she was not being bothered with palpitation.

The peculiar thing about these cases is that two are in much younger patients than we usually expect to find bundle branch block, and the ratio is reversed as to sex, according to most authors. Of course, 3 cases are not enough to form any sort of statistics. It was also interesting to me to note all 3 are doing well, the first a year and a half after discovery of the condition; the second almost 2 years after my first examination, and the third one, having just recently consulted me, is apparently not showing any ill effects from the condition.

COMMENT

In my paper I am indebted to George Herrmann for most of the description of the mechanism and special anatomy of the heart. I also took excerpts from Levine's book on "Clinical Heart Disease," and from White's book, "Heart Disease," on the prognosis of the condition.

Considering these opinions and those of other authors, I think it best to take into consideration all of the history and other findings in bundle branch block before a prognosis is given. There is no doubt in my mind but what a number of cases having complete or partial bundle branch block carry on for a number of years. I have heard Dr. G. Werley, of El Paso, state that he has seen a few cases alive for 10 or 12 years, or a longer period of time, following his first discovery of a bundle branch block.

First Nat'l Bank Bldg.

Treatment of Fractures of the Neck of the Femur by Internal Fixation

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DURING the past decade treatment of complete central fractures of the neck of the femur by internal fixation has practically been adopted as a routine method of procedure by the vast majority of orthopedic surgeons throughout the country. Smith-Petersen is responsible for reviving and popularizing the procedure. He devised a three-flanged nail which provided a maximum amount of surface contact for cohesive fixation, prevented rotation, and displaced a minimum amount of

bone. Various modifications of the principle of internal fixation have been introduced since Smith-Petersen's article appeared in 1931, both as to the manner and type of screw, pin or nail and their method of introduction. Gaenslen, Austin Moore, Knowle, Henderson and other have devised methods of fixation and technics of their own and reported excellent results.

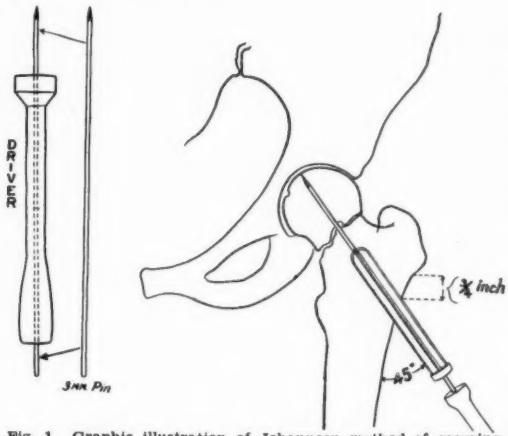

Fig. 1. Graphic illustration of Johannson method of securing proper direction of nail. The author's tunnel driver greatly facilitates application.

Fig. 2. (Case 1.) Nail in position, firmly securing fragments.

Fig. 3. (Case 1.) Solid bony union after removal of nail. Note a small piece of metal remaining in the head, a portion of the end of the tunnel. This complication should not occur if heavier material is used, as modified by the author.

With the exception of a few surgeons, the original method of Smith-Petersen, arthrotomy of the hip, open reduction, and insertion of the nail under direct vision, has long since been abandoned for the so-called "blind method" of nailing; after reduction of the hip, fixation is inserted through a small lateral incision over the trochanter, the direction of the pin being checked by a series of two view roentgenograms. The author prefers a Johansson modification of the Smith-Petersen nail for fixation, first inserting a guide pin; if the position of the pin is satisfactory, a Smith-Petersen nail with a tunnel in its center is threaded over the guide pin and driven into proper position. Each method of internal fixation seems to be reliable and dependable in the hands of those accustomed to its use. On the contrary, however, internal fixation of fractures of the femoral neck should not be considered as a simple procedure and be undertaken by inexperienced hands, or by the experienced except under proper surgical surroundings and with adequate x-ray control in the operating room to guide the accurate insertion of pins, nails or screws.

The success of internal fixation in the treatment of fractures of the neck of the femur has been practically unversal. The author was a member of committees of the American Orthopaedic Association and the American Academy of Orthopedic Surgeons, which studied the results of the Whitman method and internal fixation respectively. It was conclusively shown that the latter method could and did materially improve the very discouraging results of the Whitman method.

Other methods than these have been employed, such as bone graft and the Lorenz osteotomy, but no large series of cases has been reported. While the results prboably would be good, the bone graft of the neck of the femur is far too radical a procedure to be used routinely for treatment of fresh fractures of the neck of the femur, having relatively little advantage over fixation by metal and numerous disadvantages, such as the extensiveness of the surgical procedure, inefficient fixation, long immobilization in a plaster-of-Paris cast with consequent possibilities of hypostatic pneumonia and decubital ulcers, and a long and extensive postoperative convalescence. On the contrary, internal fixation by metal of central fractures of the neck of the femur has proved to be an excellent procedure, its disadvantages being far outweighed by the multiplicity of advantageous features.

In 1937, the author made a preliminary report of this method of treatment, having employed the three-flanged nail in 35 cases of complete, central or intracapsular fractures of the neck of the femur. This series has now been increased to 115 cases.

Except for patients who are moribund upon admission to the hospital, internal fixation is used without reservations for all central fractures of the neck of the femur, the operation being performed as soon as feasible following the fracture. These

Fig. 4. (Case 2.) Anteroposterior view, nail in position.

Fig. 5. (Case 2.) Lateral view, nail in position.

elderly patients are never comfortable in traction or splints, every movement of the hip being painful. In consequence, the longer they lie upon their backs the more possibility of inviting complications. In addition, the suffering incident to necessary movement further weakens their already debilitated condition.

The introduction of the Smith-Petersen nail or other method of internal fixation may be performed under either local or general anesthesia. Since this type of fracture occurs most often in old and debilitated individuals, in whom the least possible disturbance in their physiologic routine is desirable, local anesthesia offers many advantages. On the other hand, some patients are uncooperative, and complete muscular relaxation cannot be secured, inhibiting attempted reduction of the fracture. In such instances, a combination of local and general anesthesia may be appropriate. Recently the author has employed Pentothal, and has so far found it to be superior to other types of general anesthesia, the incidence of postoperative complications so far being nil. Perhaps this type of anesthesia will entirely supplant all other types of general anesthesia and also local anesthesia in inserting internal fixation for fractures of the neck of the femur.

Fig. 6. (Case 3.) Woman, age over 80, nail in position.

Fig. 7. (Case 3.) Firm bony union after removal of nail at the end of seven months.

The technic for local injection of the fracture, the introduction of the nail, and the postoperative

treatment have been previously described by the author,[1] and will not be repeated. Rather, the 115 cases in which the procedure has been employed will be analyzed as to age and sex, mortality, osseous union, and subsequent arthritic changes. The ages of these patients range from 17 to 90 years, 17% being between 50 and 60, 36% being between 70 and 80, 23% between 80 and 90, 14% between 90 and 100, and 10% in the remaining decades. Thus, 90% of the fractures were observed in patients between the ages of 50 and 90 years.

By internal fixation, the mortality during the first postoperative month was reduced 50%, the mortality in this series being only 5.7%. This is practically within the death expectancy of the age group in which this fracture most commonly occurs.

Fig. 8. (Case 4.) Bending of wire in the head of the bone, which is a serious complication and will not occur if stronger material is used.

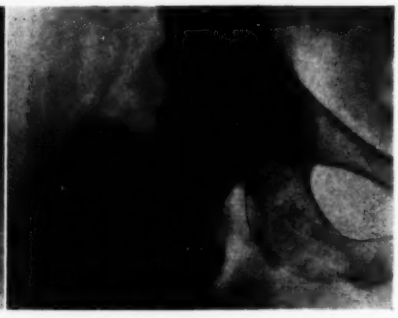

Fig. 9. (Case 4.) End-result in Case 4 after employing the nail.

In analyzing the end results as to osseous union, only those cases have been selected which have been followed both clinically and roentgenographically for a sufficient period to be certain that union is solid. Some cases did not return for a check-up or were not studied for a sufficient period of time; others are of relatively recent origin. Fifty-five cases, however, which had sufficient qualifications for an end result study, are presented as follows: 86.5% had a complete solid union; of the remaining 13.5% with non-union, many of these were treated before the technic of the operation was sufficiently perfected to place the nail accurately. In a follow-up of these 86.5% with solid union, 15.5% of the patients developed arthritis of the hip joint following aseptic necrosis of the head of the femur. Possibly this latter figure may be reduced in subsequent series by more perfect reduction, accurate placement of the nail, and postponement of weight bearing until sufficient time has elapsed to permit adequate revascularization of the femoral head.

Fig. 10. (Case 5.) Apparently solid bony union but with possibly aseptic necrosis of the head. Time alone will determine the functional result.

Fig. 11. (Case 6.) Destructive changes in the head, evidently due to extreme atrophy.

CONCLUSIONS

From a study of these 115 cases the following conclusions can be drawn in comparison to the previous method of treatment, the Whitman abduction method and other procedures, which neces-

sitate immobilization in a body cast; motion remains unrestricted in all joints including the affected hip, and stiffness of the joints, which is a usual consequence of plaster fixation, is avoided; the patient's position may be changed at frequent intervals and he may be allowed to sit up in bed on the day of the operation. This had been a very vital factor in the prevention of common postoperative complications, particularly hypostatic pneumonia, and has been a very valuable adjunct in so far as the patient's comfort is concerned. Further, the period of hospitalization has been materially shortened and the patient thereby afforded a substantial financial saving. In our series, fixation by the Smith-Petersen nail has afforded a sure constant means of immobilization of the fracture, thereby eliminating the slight motion at the fracture site and affording optimal conditions for revascularization of the head of the femur and an early bony union. In expert hands, the procedure may be considered as relatively simple, attended by little surgical shock, and by a low postoperative mortality. As such, internal fixation of fractures of the neck of the femur by metal pins, nails or screws may be at the present time considered the best method of treatment.

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Electrosurgery and Radiotherpy for Breast Cancer

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CANCER appears to be the most important single disease attacking the human race today. While the death rate from disturbances of the heart and circulatory system leads all other diseases, cancer is a close second. Furthermore, if we eliminate those cases where vascular disturbances are terminal manifestations of other diseases, then cancer becomes first.

The number who die annually from cancer is appalling. It has been stated that for every death from cancer there are two persons living who possess cancer. This would indicate that there are more than a quarter of a million people living, with cancer, in the United States. It has also been estimated that there are living an equal number of persons with benign tumors; therefore, there are approximately one-half million people in the United States with a tumor of some sort.

What course can the medical profession best pursue in offering aid to this great group of patients?

The mortality rate from tuberculosis 20 years ago stood next to that of the circulatory diseases. In the meantime, through public education, early symptoms have been pointed out and the scientific developments in hygiene, general care and medical treatment of the tubercular patient has reduced it from the second to the seventh place. I am inclined to agree with McCarty, who states, "There are enough known facts, if properly and extensively applied, to solve the cancer problem." We may, therefore, be encouraged in our approach to the solution of the problem of cancer by the example of the accomplishments in the control of the "Great White Plague."

Read before the New Mexico Medical Society, Gallup: May 11-13, 1939.

BREAST CANCER

Progress has been made in the control of carcinoma of the breast, but the results of our efforts as a whole are far from satisfactory. In the treatment of malignant conditions in general, we find breast cancer one of the most difficult to handle. As pointed out by Pfahler, speaking before the Fifth International Congress of Radiology, "The operative mortality as reported from the Bilroth Clinic 50 years ago was 23% and the 3-year cures were only 4.3%, while today operative mortality varies from less than 1% to 5%, and the 5-year cures vary from 70% in Stage I to 23% in Stage II (no longer encapsulated within the breast), and almost nil in Stage III." In his work on neoplastic disease, James Ewing says, "From clinical and pathological studies I have drawn the impression that, in dealing with mammary cancer, surgery meets with more peculiar difficulties and uncertainties than with almost any other form of the disease. The anatomical types of the disease are so numerous, the variations in clinical course so wide, the paths of dissemination so free and diverse, the difficulties of determining the actual conditions so complex, and the sacrifice of tissue so great, as to render impossible in a majority of cases, a reasonably accurate adjustment of means to ends." The management of breast cancer is made increasingly difficult because a certain number of cases will develop metastasis while the primary tumor is yet exceedingly small. Furthermore, the primary site is accessible to accidental trauma and injuries by palpation, as well as damage through physiological phenomena, all of which contribute greatly to early metastasis.

A new era in the treatment of this disease was established in 1888 when those famous surgeons,

Halsted and Willy Meyer, working independently, recorded their methods for radical amputation of the malignant breast. The advantage gained through electrosurgery has probably been our greatest contribution to the surgical technic they advocated. Another contribution was introduced when irradiation was proven to be a useful adjunct to surgery.

Radiotherapy is becoming increasingly useful because of technical refinements which have resulted from more perfectly designed equipment and years of clinical research in medical radiology.

Electrosurgery, while not new, has entered the field of surgery with great impetus because really skillful technic has become possible through the use of highly efficient surgical current generators.

With these advanced modalities at our command efficiency in the control of breast cancer has been materially increased.

DIAGNOSIS

In the diagnosis we must use all available means in an effort to detect the true situation in the breast, and we must also include a general examination of the patient and such other special examinations as may seem consistent, after the clinical history and the general physical findings have been considered. Physicians who are making clinical examinations of patients should acquaint themselves thoroughly with the practical points in the diagnosis of breast conditions and then they should consider themselves morally bound to pursue further any clue that may be developed in their findings until a correct conclusion can be established.

In every discussion of the diagnosis of breast conditions, it is well to enumerate the principle symptoms to be found when cancer is present. I will give them in the order of what appears to be those of greatest frequency and significance:

1. A lumb in the breast.
2. A retracted nipple.
3. Diffuse enlargement and increased density.
4. Pain in the breast.
5. Bloody discharge from the nipple.
6. A lump in the axilla, supra- or infra-clavicular region.
7. Erosion of the nipple.
8. Ulceration of the breast.
9. Nodules in the skin.
10. Pruritis of the areola and nipple.
11. Inflammation of the breast.
12. Dimpling of the skin at any point of the breast.
13. Swelling of the arm.
14. Deep, boring bone pains in any location.

There are many other symptoms more infrequently found that are related directly or indirectly to breast cancer. It is obvious that a lump in the breast is the most important finding in the diagnosis of the malignant breast. In three out of every four cases this is the only symptom. In the examination of a large group of patients who have discovered a lump in the breast, the responsibility assumed by the physican becomes very great. It is exceedingly important, before special investigations have been completed, to give careful consideration to the general clinical and physical findings and they should also be properly correlated with the history.

In a very large portion of the cases the findings by palpation and inspection are of such a character that the diagnosis of cancer becomes almost certain, e. g., when a localized tumor mass is encountered, in which the skin has become involved or where it is undergoing fixation to the deeper tissues of the thorax, the suggestion of a malignant tumor becomes very strong. In addition to palpation and inspection, we must take into consideration the segment of the breast in which it is located, its relation to the other structures of the breast, the findings in the axilla, the supra- or infra-clavicular spaces, as well as the opposite breast.

Transillumination in the diagnosis of breast tumors, as first suggested by Ewing, has proven to be helpful in determining their location, size and relative light density. Blood is always dark in transillumination; therefore, hematomata and hemorrhagic cysts show very clearly. Hemorrhage created by aspiration biopsy or trauma of any character may be detected. Small dark shadows near the nipple often prove to be papillary cystadenoma, especially when found in conjunction with nipple dsicharge. It is not possible to differentiate carcinoma from fibrous mastitis and other benign lesions, consequently the evidence derived from transillumination must always be taken into consideration with other data.

Radiography of the breast has become an interesting and quite useful field of investigation in breast tumor diagnosis. Radiographic technic requires utmost care. It is not practicable to adopt a routine technic for all cases because the anatomical variations are so great. When the findings are studied in the light of the information that has been so carefully recorded by Warren, Lockwood and others, they form a very important part of the general diagnostic data. Mammography and aeromammography indicate x-ray examinations of the breast after introducing contrast material into the laciferous ducts or other tissues of the breast. The investigations in this field, as introduced by Hickens, constitute a new factor in the diagnosis of conditions of the breast. It would appear that this field may bear new and useful aids in diagnosis as research investigations are extended.

BIOPSY

Of all the methods of investigation in the diagnosis of cancer of the breast, a biopsy is the most satisfactory. The object of a biopsy is to secure a suitable piece of tissue from which a satisfactory microscopical report can be obtained with the least possible harm to the patient. Admitting that there is much to be said against a biopsy of any form for the diagnosis of breast cancer, we must all admit that it gives the physician who is responsible for the treatment and management of the case data which more than any other indicates the form of

therapy best suited to the particular requirements of the individual, and it goes far to make better prognoses. In fairness to all methods it must be pointed out that a biopsy does not always yield conclusive evidence, and that, regardless, a certain number of lesions will remain undetermined, even after biopsy of any form. Quoting Ewing, "A lesion may be neither cancer nor not cancer. It may be in the process of becoming cancer, and in these intermediate phases it may be impossible to determine just where the lesions belong." It is not the purpose of this paper to go into the problem of microscopical diagnosis of tumors other than to say that it is indeed a very difficult field, even for the most experienced tumor pathologist.

The methods by which a biopsy may be performed become exceedingly important in breast diagnosis. The aspiration biopsy in use for many years, but applied with new impetus in tumor diagnosis by Martin, Stewart and Ellis of the Memorial Hospital in New York City, becomes of great value when applied with proper technic. The method is advocated almost routinely in these examinations by such men as Adair, Pack and others, who believe there is no essential danger, as it is performed in their work. It must be conceded, however, that there are some very definite limitations to aspiration biopsy in breast diagnosis. Large cellular tumors will yield an abundance of material, enabling the pathologist to make a positive diagnosis. The scirrhous form of cancer and small hard nodules are more difficult to aspirate without undue squeezing manipulations of the tumor, which obviously tend to push malignant emboli toward the axilla. As pointed out by Adair, the 18-gauge needle entering the tumor does not tear the tumor capsule and is therefore less liable to distribute malignant cells than biopsies with instruments especially designed for the punch method, etc.

Surgical biopsy, in certain cases, is warranted. For this form of biopsy, electrosurgical technic seems almost imperative. The skin incision and the entire resection should be done with cutting currents, and all hemorrhage controlled by electricity, not with ligatures. When it is decided to remove a portion of the breast which contains the entire tumor mass, utmost care should be taken in placing traction instruments on the part being removed in order to avoid crushing and the subsequent dissemination of malignant cells which may otherwise be held in situ. The margins of the incision must be protected with gauze throughout, as the operation progresses. This will aid in preventing the implantation of cancer cells into the incision before closure. The very great importance of these precautions is obvious when we consider the ease with which cancer cells may be expressed from the tissue during operative manipulation.

It is not desirable to cut into a tumor mass during a surgical biopsy. It may be undertaken, however, with electrosurgery more safely than with standard methods of surgery.

When the tumor has a marginal location in the breast, a V-shaped mass of breast tissue should be removed well beyond the margins of the tumor. In closing, a small, plain gauze or Penrose drain should be inserted and the skin coapted with metal clips. No attempt should be made to obliterate space beneath the skin with ligatures. The post-operative dressing should include moderate but adequate compression with fluffed gauze in order to approximate the skin and subcutaneous tissues with the underlying structures. Avoid the use of artery forceps or any crushing instrument on tissues not removed.

When the tumor has been removed, it should be incised with a sharp knife. If it is found to appear as dense cicatricial tissue with the characteristic chalky streaks on the cut surface of the tumor, the pathologist is justified in recommending complete enucleation of the breast without waiting for the confirmation of frozen sections and further microscopical diagnostic assistance.

TREATMENT OF BREAST CANCER

Because there are so many conditions which produce wide variations in the character of the malignant breast, there can be very little uniformity in technic for therapy. In deriving a plan of management it is well to consider:

1 The patient's true state of general health and all measures for elevating and maintaining it at as high a level as possible.

2. Pre-operative irradiation of the breast and to the lines of lymph drainage from the part involved.

3. The removal of the breast, if it is considered operable, using the most advanced technic in the field of electrosurgery.

4. Post-operative radiotherapy following a technic that has been carefully planned to meet the requirements of the case. This will necessitate further consideration of the character of the pre-operative radiotherapy and a conference with the pathologist who has completed his study of the tissues removed and who has determined its malignant grading.

Pre-operative radiotherapy should begin as soon as a reliable diagnosis of cancer has been made, regardless of the stage of the disease. All doubtful cases should receive irradiation while diagnostic methods are being completed.

Any attempt to employ a standard routine technic for pre-operative radiotherapy seems impractical. The technic must be modified from case to case because of the variations in the stage of the disease, the anatomical variations (e. g., the flat or pendulous breast) the age, the general health of the patient, the malignant grading, etc. The essential requirements are proper training and experience in radiotherapy and the availability of apparatus designed to meet the demands. It appears that supervoltage or especially hard rays certainly are not being given serious consideration at this time in this field of therapy. So far as I am aware, no one has recommended the use of voltages above 200 k.v. In general, the requirements are a beam of x-rays with a half value layer

of approximately 0.5 mm. of copper for the breast and 0.75 or 1.0 mm. of copper half value layer for the axilla and clavicular portals. A desirable plan is to aim to give 400 to 750 r into the breast each week for two weeks by the short method and four weeks by the longer method. In the full-sized breast (15 centimeters) this may be given through two tangential breast portals, administering approximately 200 r, measured in air, or 260 r, measured on the skin, per day for 5 or 6 days of each week. Through the axillary portal and the anterior and posterior clavicular portals the depth dosage must be brought up to at least 1,000 r also during the period of the treatment of the breast portals.

In some cases it appears well to establish an artificial climacterium. This requires the administration of approximately 750 r within the pelvis. One extra week is necessary for this treatment after the pre-operative breast irradiation and before the operation is done.

It will be observed that by the short method the operation may be done 21 days after the pre-operative radiotherapy was started, except where the extra week is taken for producing an artificial climacterium, when it is advisable to delay the operation until 28 days after the pre-operative radiotherapy was started.

In cases where the longer pre-operative radiothreapy is planned, the total dose into the breast will reach 75 or 100% more and consumes 4 weeks, and 5 weeks when the artificial climacterium is produced. With this amount of radiotherapy, operation should be withheld until 2 or as much as 6 weeks have elapsed following all radiotherapy.

Where the short method of pre-operative radiotherapy is employed, it is intended that the operation will be followed by post-operative radiotherapy. Where the long method of pre-operative radiotherapy is employed, post-operative radiotherapy may be withheld. In all treated cases, regardless of the plan of management, frequent observations must follow in order to detect early any development requiring further attention.

SUMMARY AND CONCLUSIONS

Radiotherapy may be employed to an advantage in practically all cases of breast cancer. In Stage I it may be omitted since we can expect more than 70% of 5-year good results with surgery alone. However, it is advisable to give post-operative radiotherapy in all cases with the possible exception of those cases where long pre-operative radiotherapy has been given. When all Stage I cases are carefully studied for those in which radiotherapy should be used, we can expect to improve the results of surgery alone by more than 10%.

Electrosurgery should be employed in all breast surgery.

From the statistics it appears that we can expect about 23% of 5-year cures in Stage II with surgery alone. With combined pre-operative radiotherpy, electrosurgery and post-operative radiotherapy the 5-year record will reach 40 to 50%.

In Stages III and IV the radiologist should exercise his best ingenuity in the effort to administer palliation. The frequency of treatment, the rate of administration and the total dosage must be directed with care along with such other treatments as may be helpful in maintaining the patient's general resistance and state of nutrition. Even in certain far advanced cases surgery may favorably supplement radiotherapy. It must also be remembered that in Stage III and IV cases radiotherapy alone does effect palliation in a large number and 5-year cures in a few cases.

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Use of the Miller-Abbott Tube*

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IT WAS observed by Wangensteen[1] that frequently following an enterostomy for the relief of intestinal obstruction, after the initial escape of the bowel content (fluid and gas), the intestine restored its continuity, curing the obstruction. From this observation he was prompted to attempt decompression of the bowel, using continuous suction syphonage by the use of a nasal catheter which entered the stomach or duodenum.[2] Finding this to decompress successful the distended gut, the Wangensteen suction apparatus was developed.[3] This method of emptying an obstructed or atonic gut is now widely used and has undoubtedly saved more lives than any other surgical device which has been developed in the last decade. The duodenal tube (Levine tube) which has been routinely used with the suction syphonage is of just enough length to enter the proximal portion of the duodenum. For this reason it has had its limitations.

Although it has been shown that the usual cause of death in high intestinal obstructions is the loss of chlorides from vomiting,[4] this does not hold true in obstructions of the lower portion of the bowel. There has been no definite evidence produced to prove the theory that death is due to the absorption of toxic products in the bowel lumen. In fact, most of the experimental work in this direction indicates that there is little if any absorption in the distended intestine. The most common cause of death in these cases is due to perforation of the gut wall with a resulting terminal peritonitis. The factors leading to this end are increased intra-enteric pressure, with a diminution of the venous flow from the intestine. As a result, the viability of the wall is lowered, allowing permeation of the

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bowel wall by bacteria and ultimately perforation and peritonitis. The cause of this increased intraenteric pressure is due to an accumulation of fluids and gas in the intestine. Rowntree[5] has shown that approximately 7,000 c.c. of fluid are poured into the alimentary canal daily by the activity of the alimentary glands (saliva, bile, pancreatic juice, gastric juice and succus entericus). Swallowed air accounts for about 70% of the gas which is present in the intestine. The remaining 30% is present as a result of the diffusion of blood gases into the intestinal lumen and the formation of gas by the digestive processes.

From the above resume of the physiology of intestinal distention, the reason for the inadequacy of the ordinary duodenal tube can be seen. Although the greater portion of swallowed air is sucked back through the tube, as are those secretions which are secreted high in the alimentary tract, collections of gas and fluids lower in the intestine cannot be aspirated, due to the high position of the duodenal tube.

In 1934 Miller and Abbott[6] described a double lumened tube with which they were able to intubate the entire small intestine. One lumen was attached to a balloon which could be inflated; the other lumen was perforated so that by suction through the tube the intestinal contents were aspirated. Abbott and Johnson reported the use of his tube in 1938[7] as an adjunct in the diagnosis and treatment in 16 cases of intestinal obstruction. In all but 3 cases the procedure was successful, and these 3 were in extremis. The action of the tube is explained as follows:

"As the gas and fluid are sucked out of the gut, the intestinal walls contract and, regaining their normal propulsive movement, they force the balloon ahead. The suction likewise collapses the intestine loop by loop, as the tube advances until the obstruction is reached."

Wise[8] reported 3 cases in which the Miller-Abbott tube was used, demonstrating different conditions where it had its use, namely: in (1) paralytic ileus; (2) intestinal obstruction (without strangulation); (3) as an aid in the diagnosis and location of an obstructive lesion in the small intestine.

The advantages of the tube in the treatment of intestinal obstruction were presented by Johnson et al.[9] These were:

"(1) it carries the patient past the period when operation is most dangerous; (2) it prepares the patient for operation by control of the distention; (3) it affords a means of localizing the site of the obstruction and frequently indicates its nature; (4) it permits oral feeding when fluids and foods are so important . . . ; (5) it releases the tension above the site of the obstruction and frequently reestablishes the normal passage of intestinal contents . . . ; (6) in the treatment of paralytic ileus this is the only method which can uniformly be depended on to relieve the distention of the small bowel, which is not uncommonly fatal."

The diet which may be assimilated with the tube in place has been outlined,[10, 11] and consists mainly of liquids and easily digested soft foods.

The contraindications to the employment of the Miller-Abbott tube are the same as those stressed by Wangensteen in his description of conservative decompression in 1932. The two absolute contraindictions are: (1) strangulating types of obstruction, and (2) obstruction of the large bowel. The tube often traverses the entire alimentary tract, but it cannot be depended upon to accomplish this before perforation occurs. (See Case 2.)

It is obvious from the above that the Miller-Abbott tube has definite advantages which are not offered by the ordinary duodenal tube. Wangensteen[12] states:

"Its (duodenal tube) progression beyond the pyloric sphincter is slow as contrasted with the balloon type of tube."

The Miller-Abbott tube is often difficult to introduce and requires patience and constant attention until the tube has reached its destination. The tip is well lubricated and passed through the nose into the stomach. The patient is then instructed to lie on his right side and enough tube is inserted to allow the distal end to enter the duodenum. A presumptive test to show that the tube has reached the duodenum is done by distending the balloon with air, and the rythmic contractions of the duodenum can be sensed through the plunger of the syringe as a result of back pressure. The absolute test is an x-ray picture verifying the tube's position. When it is certain that the tube is located in the duodenum, the balloon is inflated and the tube is carried down the intestinal tract by peristalsis. Portions of the tube are "fed" through the nose at regular intervals in order to aid the tube in its descent. Suction is applied to the other lumen and maintained constantly except at intervals of about every hour, when the tube is irrigated with water.

CASE REPORTS

Four cases are here reported which demonstrate the use and advantages offered by the Miller-Abbott tube.

Case 1. A white female, aged 47, entered the hospital on April 12, 1939, complaining of abdominal cramping, vomiting, obstipation and abdominal distention. In 1927 this patient had been operated upon for "gall bladder trouble," but the operative procedure was not known. A ventral hernia developed in the line of incision, which was operated the same year, but recurred. In 1931 the patient developed an intestinal obstruction which necessitated a bowel resection. The patient was a diabetic, and except for this condition had apparently been in good health from 1931 until February, 1939. At this time she was admitted to the hospital with a diagnosis of intestinal obstruction and diabetes mellitus. The obstruction relieved itself on conservative treatment, and the patient was released from the hospital. On a soft diet and mineral oil the patient did well with no obstructive symptoms until April 8, 1939. At this time she administered to herself several ounces of castor oil. She stated that she was not constipated but needed a "toning up." Several hours after this self-medication she began to have abdominal cramping. The following day she began vomiting, and although she had had a large defecation following an enema her abdomen was becoming distended. These symptoms progressed until she was admitted to the hospital. The pertinent findings on admission were as follows: The skin was dry and inelastic, showing dehydration; the abdomen was distended with generalized tenderness and increased borborygmus. The blood count was 3,690,000 red blood cells and 17,200 white cells. The urine contained albumin 1 plus, sugar 4 plus, acetone and diacetic acid 4 plus, and there were 100 pus cells per field. Wangensteen suction syphonage was begun with intravenous fluids, glucose and insulin. After 48 hours of continuous nasal suction

using the ordinary duodenal tube, the patient's general condition improved but her abdomen remained distended. Due to the patient's diabetes and the fact that the obstruction appeared to be mechanical in type rather than strangulating, it was deemed advisable to postpone surgery until the patient's condition had improved. On April 14 a Miller-Abbott tube was inserted. Its course was checked by x-rays (see Fig. 1) until the obstruction was reached. April 16 the abdomen was flat, and April 17 a regular liquid diet was taken and continued until the day of her surgery. On April 18 the balloon was deflated. During this period the patient vomited several times but retained the greater portion of the fluids taken. By April 19 the patient's condition permitted surgery, and under spinal anesthesia the abdomen was explored. The small intestine, which had been quite distended 4 days previously, was now contracted with good tone. The site of the obstruction was found in the ileum, where the bowel had kinked upon itself. On palpation it was found that the tube had passed this point, and its tip lay in the transverse colon. Passage of the tube past the obstruction can be explained by the fact that the suction had relieved the obstruction, and deflating the balloon had allowed the tube to pass beyond this point. Following surgery the Miller-Abbott tube was pulled back until the tip lay in the small intestine, and the patient was allowed to take water orally. The tube was completely withdrawn on April 21, and the patient had an uneventful convalescence.

Fig. I. (A) Miller-Abbott tube the day after it had been started lying in the jejunum. After forty-eight hours of continuous nasal suction with the ordinary duodenal tube the intestinal distention is still obvious.

(B) Two days after the Miller-Abbott tube was inserted. Note the diminution of the distention. At this time the patient was taking fluids orally and was much improved.

(C) The site of the obstruction located in the terminal ileum by the injection of barium through the tube. Films taken eight hours following this showed that the barium had not progressed beyond this point. The next day at operation the intestine was found kinked upon itself in this area. The tube had relieved the obstruction to the extent that it had passed through the ileum and its tip was found in the transverse colon.

Fig. II. (A) X-ray showing intestinal ileus with severe distention. The usual duodenal tube had been used with Wangensteen syphonage for two days before this picture was taken. The Miller-Abbott tube is just being introduced.

(B) X-ray three days after the tube was started. Note the absence of gas in the small intestine. Gas still remains in the large bowel and was released by opening the external loop of colon.

Case 2. A white female, aged 56, was admitted to the hospital on June 3, 1939, where a diagnosis of carcinoma of the stomach was made. Physical examination showed a palpable mass in the epigastrium, in which peristaltic waves could be observed. The abdomen was distended and a construction of the lower colon could be palpated digitally about 4 cm. above the anal outlet. The patient was prepared for surgery by intravenous

fluids and transfusions, and Wangensteen nasal syphonage was started on June 5, to relieve her increasing tympanitis. On June 9 an exploratory operation was done, and it was found that the entire greater curvature of the stomach was involved by the neoplasm. The peritoneum and mesocolon were studded with malignant-appearing nodules, and a biopsy of one of these tumors showed a grade IV adenocarcinoma. Satisfactory exploration of the lower end of the colon was not done, due to the patient's condition, which became poor shortly after the abdomen had been opened. The colon was quite distended, and the first stage of a colostomy was performed and the abdomen closed. The Wangensteen suction was continued following surgery, but in spite of this the patient developed an ileus. By June 11 the abdomen had become so tense that the overlying skin was blanched, and it seemed that the line of incision would burst. On this date a Miller-Abbott tube was inserted (Fig. 2). By the following day the patient was greatly relieved, the tympanitis had diminished, and bowel sounds could be heard. Some distention remained until June 14, when the loop of colon protruding through the colostomy site was divided by cautery. At the time the colon was opened there was a gush of gas, offering good evidence that although the Miller-Abbott tube had relieved the tympanitis of the small intestine it had not aided the distention in the large bowel. The tube had not passed through the ileo-cecal valve in 72 hours, and was removed June 14. The patient's abdomen remained flat until June 29, when she again developed an ileus, 3 days before her death. The Miller-Abbott tube was reinserted, relieving the distention and allowing the patient to be comfortable until the time of her death on July 2, 1939.

Case 3. A white female, aged 37, entered the hospital on July 4, 1939, for the treatment of intestinal obstruction. The patient had had two laparotomies (appendectomy and salpingectomy), the last operation being in 1923. The abdomen was greatly distended (Fig. 3), and the obstruction appeared to be mechanical in type. Nasal suction with the ordinary duodenal tube was begun the day of admission. Following this, the patient's vomiting ceased, but the abdominal cramping and distention remained unchanged. A Miller-Abbott tube was substituted for the Levine (duodenal) tube on July 6. By the next day the patient was greatly relieved and was allowed to drink water freely. On the evening of July 8 the patient passed a small amount of gas rectally, and on the night of July 9 had 5 liquid stools. This was her first defecation in 6 days. The next day the patient was placed on a soft diet, and the tube was removed on July 11. Thus far the patient had had no recurrence of the obstruction.

Case 4. A Mexican female, aged 21, entered the hospital on July 3, 1939, complaining of vomiting, abdominal pain and distention. These symptoms had had their onset June 30, 1939, and the patient admitted taking castor oil and milk of magnesia daily since the onset of her illness. A diagnosis of appendicitis with peritonitis was made and as soon as the patient's dehydration was relieved an appendectomy was done. The diagnosis was confirmed at operation. Wangensteen suction with a Levine tube was started postoperatively, but no relief from her tympanitis was observed. July 6 a Miller-Abbott tube was inserted into the stomach, but could not be directed through the pyloric sphincter in a period of 24 hours. X-rays of the abdomen showed the tube to be coiling in the stomach. This was thought to be due to the softness of the tube, which had been used considerably on other patients. A new Miller-Abbott tube was ordered and a Levine tube was reinserted until it could be procured. By this time the patient's condition was very poor and the ileus had progressed even though constant nasal syphonage had been used. A new Miller-Abbott tube was started on July 8, and an x-ray taken 1 hour after the tube's insertion showed the tip to lie in the duodenum. The balloon was inflated, and 8 hours later x-ray of the abdomen showed the tip to be at the junction of the duodenum and jejunum. In 20 hours (July 9) the abdomen was softer, a few weak bowel sounds could be heard, and x-rays revealed the tube to have reached the proximal portion of the ileum. The patient's condition, which had been critical, improved, and her respirations, which had been embarrassed due to the distention, became less labored and dropped from 36 per minute to 24 per minute. Flatus and a liquid stool resulted following an enema on July 10, and on July 11 a low residue diet was well tolerated. The Miller-Abbott tube was removed on July 13, at which time

Fig. III. (A) Miller-Abbott tube entering the duodenum in case of intestinal obstruction. Distention is present after forty-eight hours of continuous nasal suction with the ordinary duodenal tube. The balloon was inflated soon after this picture was taken. Remains of barium enema demonstrate that the obstruction is confined to small bowel.

(B) X-ray three hours after the balloon had been inflated. This picture was taken to be certain that the tube was progressing down the intestinal tract.

(C) Flat plate of abdomen three days after the Miller-Abbott tube has been started. Note lack of distention. Patient defecated five times on this date, the first fecal material she had passed in six days.

the abdomen was soft and the patient was making a good recovery.

COMMENT

Four cases are presented in which the ordinary duodenal tube failed to decompress a distended abdomen in a period of 48 hours or more. Two of these cases were mechanical obstructions and 2 were ileus of the small bowel. These cases were all relieved by the use of a Miller-Abbott tube.

In the first case we feel that the Miller-Abbott tube played an important part in saving the patient's life. She entered the hospital dehydrated, with marked abdominal distention as a result of an obstructed intestine and had an uncontrolled diabetes. After 48 hours of continuous nasal suction using an ordinary duodenal tube the distention was not relieved. A Miller-Abbott tube was then introduced, and after it had progressed into the small intestine the abdomen became flat. At the same time the patient was aiding in maintaining her fluid intake orally. After 4 days she improved to the point where the obstruction could be directly attacked. The site of the obstruction was definitely located by the tube, which is an advantage to the surgeon operating these cases.

Case 2 shows the Miller-Abbott tube's advantage over the Levine nasal tube in cases of intestinal ileus. It also demonstrates that the tube does not transverse the intestinal tract rapidly enough to be of dependable value in the cases of obstruction of the large bowel and is contraindicated in these patients.

In Case 3 the Miller-Abbott tube saved the patient an enterostomy, as she had improved but little with 48 hours of nasal syphonage with a Levine tube. Case 4 demonstrates the value of the Miller-Abbott tube in obstinate cases of ileus with peritonitis.

Two cases have been encountered in which we found it impossible to direct the tube through the stomach into the duodenum. Since suction was constantly maintained through tube it was acting as efficiently as a Levine tube in deflating the upper porton of the alimentary tract. It has been suggested that a steel magnet may be of aid in directing the tip of the tube through the pyloris. We had not had the opportunity of giving this method a trial.

We do not believe this new tube will replace the Levine tube, as there are certain indications where the latter has its advantages. In most postoperative cases it is more feasible to use this shorter tube for the prevention of postoperative ileus and to protect suture lines. Vomiting in most diseases can be controlled by the Levine tube. As shown above, however, the Miller-Abbott tube does have certain indications for its use, and its advantages in these cases should be realized.

SUMMARY

The Miller-Abbott tube is a valuable addition to the surgeon's armamentarium, and when the indications for its use are present should be used in preference to the ordinary duodenal tube.

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Subserous Cholecystectomy with Cystic Duct Drainage and Lipiodol Injection of the Common and Hepatic Ducts

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MY OBJECT in reading this paper is to further familiarize procedures that I feel have great merit in that they offer a lower mortality rate, and offer a greater protection to the patient and a much easier and more comfortable convalescence at the same time.

Subserous cholecystectomy is not a new procedure, as Sweek has been doing this operation for some 14 years. It was first described by Doyen[1] in France. It was also described by Sweek[2] in 1926, but for some unknown reason it has never reached the popularity in this country that it so richly deserves. For some it perhaps appears a longer and more technical procedure, for others it might seem to offer too many difficulties for the good derived. But, I assure you neither of these reasons, in my mind, is too great an obstacle when we consider the welfare and safety of the patient first.

In some cases the technique is difficult, but so are some cases done by the old classical method, and there is also an occasional case, where the gall bladder presents a greatly thickened wall, perhaps

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full of stones, and of long standing with the cystic duct completely obliterated, where it is impossible to carry out this type of operation. This type of case is the only contraindication for this operation, and this simply because it is impossible to do a subserous dissection and impossible to get drainage from the cystic duct, as you cannot get a rubber tube into the duct.

In describing the technique a thought comes to me that we might save ourselves some trouble if before commencing the operation we would first look at the x-rays of this patient and locate the exact position of the gall bladder, and we can thus make our incision accordingly, either high or low. I, personally, nearly always use the oblique incision running parallel to the costal margin, making it as nearly directly over the gall bladder as possible. This incision makes for much better visualization; and also, perhaps of much more importance, practically forestalls any liklihood of post-operative hernia. For this reason, even when the appendix is to come out, I make a low right rectus incision for it, for I feel that the added time consumed is not nearly as important as the ease of the operation through this incision and the insurance against a post-operative hernia. And last but not least, the much less liklihood of traumatization.

TECHNIC

The subserous dissection is done by grasping the fundus of the gall bladder with either a sponge forcep or a triangular allis forcep, and injecting the serous coat between the lower edge of the liver and gall bladder with 1% novacaine solution. When the operation is done under local infiltration anesthesia this step is very important, as it prevents any uncomfortable sensation felt by the patient and helps him to relax better. It also greatly facilitates the dissection of the peritoneum from the gall bladder wall, and for this reason it is done by me in all local and general anesthesia patients. When this injection is done, an incision is then made in the peritoneum around the fundus of the gall bladder, and the dissection is started to loosen the gall bladder proper from its peritoneal covering. Triangular allis clamps or pile clamps are used to hold the proximal edges of the peritoneal cuff away from the gall bladder wall and to enable better visibility and to aid in the dissection. These clamps being distributed around the cuff about every inch or inch and a half. Both blunt and sharp dissection are used, placing an open gauze sponge on the finger during the first part of the peeling out, or dissection, and small sponges on sponge forceps as it is carried down deep towards the ampulla of the cystic duct. The sharp dissection is used only when tough bands of fibrous tissue will not reflect back from the wall. However, in this procedure we must exercise great care in not breaking into the gall bladder, but this is sometimes unavoidable as the wall may be very thin and friable. However, if it does, it need not cause any great concern, as the operation can be continued after clamping a sponge forcep over this ruptured area, and the bile spilled is spilled into the peritoneal cuff, and if carefully handled will not get into the abdomen to contaminate it in case the bile is not sterle. In fact, this one point I might stress as an added advantage over the old classical operation, as you are working in a closed field carefully walled off by the peritoneal cuff.

I commonly inject novacaine a number of times during the dissection, as it so greatly facilitates the dissecting. Some of you, perhaps, raise the question of bleeding during this procedure, but in most cases there is practically no bleeding as the small terminal vessels start peeling off with the peritoneum and are no source of worry. Occasionally, however, a larger vessel breaks through and can easily be clamped off and dissected along with the cuff. If bleeding occurs down deep in the cuff it can be easily packed down with small gall bladder sponges for a short time, and then quickly located and treated in the same manner or tied off. When the dissection is carried down to the beginning of the cystic duct, the duct is then grasped with a right-angle gall-bladder forcep and the duct dissected out a little way to facilitate the tying in the duct of the drainage tube. Another right-angle clamp is then placed distal to the first and the gall bladder removed by cutting between the clamps. The first clamp is then removed and replaced at one edge of the duct, and another at the opposite edge; thus we can easily open the lumen of the duct, and, after palpating same for stones, we insert a flexible finger probe to break up any adhesions or narrow margins in the lumen of the duct. It can readily be seen that the palpation is important, as we might push a stone down into the common duct, when it can be avoided. We very commonly run into cases where gall bladder and cystic ducts are full of small stones, and in these cases where any stones are present we always milk them back into the gall bladder before we apply the right-angle clamps on the cystic duct.

There are times when the gall bladder is so tightly distended with bile or bile and stones that before we can start the dissection we have to remove some of its contents through a large needle and syringe to prevent rupturing it. This is done at the fundus and then applying the sponge or allis clamps as described before prevents any leaking.

When the cystic duct is opened up a suitable size, new rubber catheter, usually size 14 to 16, is cut off at the end and inserted into the duct down close to the common duct; it is then tied in place with a No. 1 or No. 0 chromic catgut by placing around the cystic duct and rubber tubes. When this is completed a syringe of saline is forced through gently to test for any leaks. If none is found then all of the instruments are removed from the field and the cystic, common and hepatic ducts are injected with lipiodol through the catheter. The catheter is then clamped off and a sterile sheet thrown over the operative area and an x-ray taken of the injected area. The x-ray film

is placed under the mattress padding previous to the preparation and draping of the patient for the operation. Precaution should be taken that there be no delay in the taking of the x-ray, as the lipiodol will spread out too much and give a poor picture. The film is quickly developed and returned to the operating room for us to see. All of this does not consume over 6 or 7 minutes delay and is worth everything to the patient and the doctor. This technic properly done can completely assure the doctor that there are, or are not, stones in the hepatic or common ducts, thus assuring the patient of relief by removing any stones found at this time. And it prevents the patient from having to come back with no relief of symptoms, and then by long and tedious work finally discovering a stone present which had been overlooked at the previous operation, and having to be told another operation is necessary for the removal of a stone which unfortunately had been overlooked at the previous operation—to say nothing of the hazards and difficulties of a second, and now, unnecessary operation. Thanks must be expressed for this new method, which, to me, is one of the greatest advances in gall bladder surgery that has been made in many years.

When this last step has been completed, the peritoneal cuff, which is left around the cystic duct, is then purse-stringed around the catheter and the excess tissue dissected off. If an oblique incision has been made the tube is brought out at the lateral margin of the wound, as closure is done after first tying the distal end of the catheter to the loose end of the same piece of catgut which was used in making the purse string on the cuff. This is important as a safety factor in preventing removal or accidental dislodgment of the catheter by the patient or a careless nurse. If traction or pulling takes place on it, then the stress is on the catgut and the peritoneal cuff and not on the tube or cystic duct. As a precautionary measure I sometimes anchor the tube to the abdominal fascia also. In cases where the right midrectus incision is made, I always bring the drainage tube out through a stab wound in the side. This prevents any kinking of the tube and also prevents any weakening of the incision by the presence of a drainage tube.

The average case shows a flow of bile coming out of the tube before the incision is closed. When the patient is brought back to his room the catheter is hooked up to a bottle tied to the side of the bed.

A very interesting feature in the convalescence is to notice the change in the character of the bile as convalescence progresses. At first the bile is thick looking and dark in character, and within a week the bile has assumed a much healthier color and appearance, being thinner and more golden brown.

COMMENT

In any operation on the gall bladder or ducts, a spasm of the sphincter of Oddi is always caused, with a consequent back pressure on the ducts and liver, causing pain and discomfort. Where we have a tube in the cystic duct draining off the bile, this back pressure cannot take place. Generally in 5 or 6 days we notice a decrease in the amount of bile draining out. This is accounted for by the fact that the spasm of the ampulla and the sphincter of Oddi is decreasing or has stopped, thus permitting the bile to resume its easiest and most natural course.

Even in cases where obstruction of the common or hepatic ducts is found, and the patient's condition will not permit further operative procedure, this cholangiography has given us the location of the obstruction, and this information permits us to treat the patient more intelligently, and then just as soon as conditions warrant we can return and remove the obstruction; whereas before, the patient died without relief, or after long, tedious and expensive trials and proceedings the trouble was finally located and relived with much more pain and suffering and danger to the patient.

Sweek, Williams and myself have now collected some 350 cases done by this method, with only 1 death. This record, I believe, is certainly proof that the procedure has great merit, and at this time I think it might be well to stress the value of local infilration anesthesia. Some of you, perhaps, will raise the question, "Why not simply tie the tube in the cystic duct with the old classical operation, then do the cholangiography without doing the subserous dissection," and to this I would reply that due to the shortness of the cystic duct and the proximity of the cystic artery it is very difficult to perform this feat, keep the tube in place and keep control of the cystic artery, and not traumatize the common or hepatic ducts. Whereas, with the subserous dissection, none of this trouble is encountered if the technic is carried out properly.

Then, to sum up and with the hope that this paper will in some small measure help to popularize this great advancement in gall bladder surgery: Note the lack of traumatization of the liver and common and hepatic ducts; the absence of post-operative hemorrhage; the flushing out and draining of the bile ducts; extremely low mortality; the great ease and rapidity of convalescence, and last, but not least, the knowledge of unseen and unpalpable stones and obstructions brought to light by the cholangiograms and our consequent ability to handle them according to the conditions present with relief to the patient, content-

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Sweek, Hartgraves and Williams[3] were the first to describe this lipiodol injection technique. Their first work was done on dogs, then later applied in human gall bladder surgery.

Waltham M. Walters[4] advocates routine common duct exploration in all gall bladder operations where there is a history of chills and fever. He institutes drainage of the common duct post operatively with lipiodol injections of the common duct routinely post operatively. The reason that he advocates contracts media injections into the common duct with cholangiography is to determine when to remove the tube drainage. In this article he mentions five or six others who have advocated cholangiography by injection of the common duct with contract media by means of a needle introduced into the common duct. None of these have ever been very successful. He does not mention any of the work of Sweek, et al. which has been published previously.

ment, rest and bliss for the tired surgeons during the post-operative days and nights to follow.

234 No. Central Ave.

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Diagnosis and Management of Acute Intestinal Obstruction

(Clinical Study of 100 Consecutive Cases)

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Hollywood, Calif.

DESPITE our present day methods, intestinal obstruction remains the most deadly of all intesinal conditions and it causes about the same mortality that it has caused for almost three decades. Even 50 years ago, when abdominal surgery was in its infancy, Reginald Fitz and Nicholas Senn, who summarized the best medical opinion on the subject of acute bowel occlusion of that day, reported a mortality of 69%. Current reports on the mortality of acute intestinal obstruction give figures ranging from 19% to as high as 61% Senn found the results of immediate surgical treatment to be practically identical with those obtained by more conservative methods.

Today the question of the apparently more radical surgical treatment of obstruction versus the so-called conservative method of treatment remains unsettled. Men who have had wide experience and great interest in the field have, in recent years, made important strides along the line of conservative treatment. To Wangensteen in particular credit is due for introducing intraduodenal suction through a nasal catheter as a means of decompression in cases of bowel obstruction. It is true that many of the cases treated by this method are relieved without resort to surgery. It is, furhermore, possible that the attachment of an inflated balloon to the end of the nasal catheter, as advocated by Abbott and his co-workers, will increase the number of cases which may be treated by this method. On the other hand, one must take into consideration the available data which indicate that if all cases of simple obstruction are operated on within the first 5 or 6 hours after the onset of symptoms, a mortality rate of only 5% obtains; whereas, if these cases are permitted to go on to strangulation, the mortality will approach 100% after 48 hours have elapsed without surgical intervention. Strangulation is said to occur in 10 to 15% of cases of intestinal obstruction.

Is the diagnosis of strangulation in the hands of general surgeons, on the whole, accurate enough to warrant a blanket rule of giving all cases of simple obstruction a trial of conservative treatment? Furthermore, how accurate is the diagnosis of acute intestinal obstruction? It is obvious that regardless of the method of treatment one subscribes to, early accurate diagnosis is essential if the regrettable percentage of fatalities resulting from intestinal obstruction is to be reduced. How often, then, is the diagnosis of intestinal obstruction missed, and, when missed, why?

With these questions in mind, I have made an effort to study in detail 100 of the most recent available case histories at the Los Angeles County Hospital and summarize some of the more pertinent observations.

From Department of Surgery, College of Medical Evangelists, Los Angeles County Hospital.

STUDY OF CASES

The series of 100 cases reviewed included 78 acute small bowel obstructions and 22 acute occlusions of the large bowel. Of the latter, 5 involved the right half of the colon, and 17 the left half, including the rectum.

The most common lesion of the large bowel was, of course, carcinoma, which was present in 17 cases. The other 5 cases included 2 obstructions due to adhesive bands, 1 to volvulus, 1 to strangulated hernia and 1 was a stricture following a radiation proctitis.

Post-operative adhesions constituted the major portion of obstructive lesions of the small bowel, although the group included as causative factors, hernia, ileus due to inflammatory lesions, fibrous bands producing obstruction in subsiding pelvic disease, mesenteric thrombosis, regional ileitis, volvulus, intussusception and gall stones.

The diagnosis was missed 16 times out of the total 100 cases, making the accuracy of diagnosis 84%. All of the 16 diagnostic errors were in the group of 78 small bowel obstructions which constituted a diagnostic accuracy of 70.5% There were no diagnoses missed in the large bowel group of 22 cases. The type of obstructive lesion, however, was usually not mentioned in the tentative diagnosis.

The histories were carefully studied in an attempt to ascertain why the errors in diagnosis, which occurred in 16 cases of the small bowel group, were made.

As a result of this study, it seems evident that an accurate diagnosis might have been made in 13 out of the 16 cases had certain diagnostic factors not been overlooked or disregarded.

A history of intermittent cramping pain was noted and apparently disregarded in 9 (56%) of the cases in which the diagnosis was missed. No x-ray flat plates of the abdomen were taken in 8 cases. A positive x-ray diagnosis was either overlooked or disregarded in 8 cases. The opinion was expressed that the patient was not obstructed

in 3 cases because of one or more bowel movements following enemata. Hypodermic injections of morphine were responsible for the masking of symptoms in 3 cases. The x-ray flat plate was negative in 1 case In connection with this, it should be mentioned that roentgenologic diagnosis of obstruction was positive in 74% of the cases studied. Furthermore, the diagnostic accuracy of the x-ray was greater in the large bowel group of acute obstructions.

In 3 cases, symptoms of obstruction were present but were obscured by the presence of other pathology. One case was thought to be a lobar pneumonia with ileus, and was found at necropsy to be tuberculous pleurisy with effusion and a mechanical obstruction due to adhesions. In the others, the diagnosis was not made because of associated appendicitis and pelvic inflammatory disease.

In 3 cases only were there no diagnostic features that could be ascertained by reviewing the case histories.

Studies of the death rate revealed 40 deaths (40% mortality) in the group of 100 cases. There were 24 deaths (30.7% mortality) in the 78 small bowel cases and 16 fatalities (72.7% mortality) out of the 22 acute obstructions of the large bowel. The majority of the latter were far advanced carcinomas.

In the small bowel group of 16 cases in which the diagnosis was missed, 7 deaths (43.7% mortality) occurred. Six of the 7 deaths occurred in cases which were not operated on, and 1 occurred in the remaining 11 cases which were operated on for other surgical conditions which were thought to exist.

Seventeen deaths (27.4% mortality) occurred in the 62 cases in which an accurate diagnosis of acute small bowel obstruction was made.

An attempt was made to obtain data which might correlate the type of therapy employed with the mortality rate. The treatment used fell into 3 groups.

1. Those reated by conservative methods only; namely, suction and parentoral fluids including sodium chloride. 2. Those who received similar conservative treatment and were later operated on. 3. Those who were operated on immediately with or without preliminary duodenal drainage and intravenous saline just before or during surgery.

The conservatively treated group comprised 18 cases of small bowel obstruction. Ten of these died (55% mortality) from gangrene with its attendant complications and 5 from ileus. Three cases had undergone previous multiple operations for obstructions. These were included in the 8 cases who survived. Four cases of obstruction of the large intestines were treated conservatively and all died. All were carcinomas.

Taking the 100 cases as a whole, there were 14 deaths (60% mortality) out of the 22 cases treated conservatively.

Combined conservative with subsequent surgical treatment was instituted in 25 cases of obstruction of the small bowel and in 12 cases of the large bowel obstructions. There were 7 deaths (28% mortality) in the small bowel cases, 3 of which were from gangrene and 3 from ileus. Eight deaths (66.3% mortality), 1 of which was due to gangrene, occurred in the 12 cases of the large bowel group.

Considering the conservative and combined conservative type of therapy as a whole, there were 8

TABLE I

ACCURACY OF DIAGNOSIS

REVIEW OF 100 CONSECUTIVE CASES OF INTESTINAL OBSTRUCTION AT THE LOS ANGELES COUNTY HOSPITAL

No. of Cases	Times Diagnosis Missed	Why Missed	Deaths in Missed Cases	Deaths Diagnosed Cases	Total Deaths
SMALL BOWEL (78 cases)	16 (20.5%)	Presence of Colic Disregarded 9 (56.3—%) No. X-ray Taken 9 (56.3—%) X-ray Disregarded 8 (50%) Had Bowel Movement 3 (18.7—%) Hypo Given 3 (18.7—%) Other Factors 3 (18.7—%) No. Diagnostic Features 3 (18.7—%) X-ray Negative 1 (6.3—%)	(16) 7 (43.7%)	(62) 17 (27.4%)	24 (30.7%)
LARGE BOWEL Right Half (5 cases) Left Half (17 cases)				16 (72.7%)	16 (72.7%)
GROUP AS A WHOLE (100 cases)	16 (16%)		7 (43.7%)	33 (33%)	40 (40%)

TABLE II

REVIEW OF 100 CONSECUTIVE CASES OF INTESTINAL OBSTRUCTION AT THE LOS ANGELES COUNTY HOSPITAL
CO-RELATION OF TYPE OF THERAPY USED WITH MORTALITY

No. of Cases	Conservative Treatment Alone	Deaths	Combined Conservative and Surgery Later	Deaths	Immediate Surgery with Preoperative Suction and Hydration	Deaths
		55.5%		28%		20%
SMALL BOWEL (78 Cases)	15		25	1	35	1 (Evisceration)
	3 (Previous Multiple Operations)	5 (Gangrene)		3 (Gangrene)		3 (Gangrene)
		5 (Ileus)		3 (Ileus)		3 (Ileus)
	TOTAL 18	TOTAL 10		TOTAL 7		TOTAL 7
LARGE BOWEL		100%		66.3%		66.3%
Right Half (5 Cases) Left Half (17 Cases)	4	4	12	7	6	4
				1 (Gangrene)		
				TOTAL 8		
		60%		40.5%		26.8%
GROUP AS A WHOLE (100 Cases)	22	4	37	8	41	4
						1 (Evisceration)
		5 (Gangrene)		4 (Gangrene)		3 (Gangrene)
		5 (Ileus)		3 (Ileus)		3 (Ileus)
		TOTAL 14		TOTAL 15		TOTAL 11

deaths, due to gangrene, out of the 43 cases of small bowel obstruction, and 1 death from gangrene out of 16 cases of large bowel obstruction treated by this method.

Blood counts on the patients with gangrene almost invariably showed an elevated total leucocyte count and a high percentage of polymorphonuclear cells.

Immediate surgery was employed in 35 cases of the small bowel lesions and in 6 of the large bowel cases. There were 7 deaths (20% mortality) in the small bowel group. Three had gangrene and 3 ileus. Four of the 6 with large bowel obstruction in this group died (66.3% mortality).

The term immediate surgery in this group does not imply that these cases were all operated on soon after the onset of symptoms. On the other hand, as nearly as could be ascertained from the case histories, only one-third of the case operated on immediately after admission to the hospital had symptoms of less than 1 day or 1 night duration. There were no fatalities from surgery of these early cases except 1 from evisceration. The remainder of the cases of this group were admitted to the hospital from 2 days to 1 month after the onset of symptoms, suggesting varying degrees of obstruction.

Taking into consideration this entire group of 100 cases of acute intestinal obstruction, the mortality rate following conservative treatment was 60%; after conservative treatment combined with surgery at a later time, 40.5%; and with immediate surgery, 26.8%.

COMMENT

We recognize the difficulty of evaluating statistics from different institutions when we attempt to interpret the results of a study of this type. This is amply illustrated when we consider that at the Mayo Clinic, where acute complete obstruction of the large intestines is encountered with relative rarity, the mortality rate of surgery of the colon and rectum, in the hands of Dixon and his associated surgical staff, ranges from 4% to 12%.

Whereas, at the Los Angeles County Hospital, 22 practically terminal cases of complete large bowel obstruction occurred in over a series of 100 cases with a death rate of over 70%. Likewise, Bargen and his associates, who have done admirable work in the medical management of intestinal lesions, have been in a position to carefully observe and select cases of bowel obstruction suitable for medical and combined medical and surgical treatment. The results are more favorable than those obtained from an institution where neglected, indigent patients constitute a large percentage of admissions.

When we further consider the group of cases included in this report, such factors should be admitted as the possible incidence of poorer risks in the group treated conservatively than in the surgically treated cases and vice versa.

However, if these precautions are kept in mind and we are further reminded that the series of cases we report is relatively small, it seems reasonable that certain deductions may be suggested.

It is of interest and importance to note that in 13 of the 16 cases in which the diagnosis of the intestinal obstruction was missed, an accurate diagnosis apparently could have been made had certain commonly accepted diagnostic criteria not have been overlooked or disregarded. The most important was the occurrence of intermittent cramping abdominal pain. This symptom was noted in over half of the missed cases. The importance of the x-ray flat plate of the abdomen should be stressed when we recall that in one-half of the 16 cases positive findings did not prompt the diagnosis of obstruction. Emphasis should also be placed on the 3 errors which were made because the patients had bowel movements following enemas. It is a fallacy to assume that the passage of stools precludes the diagnosis of obstruction, since, naturally, fecal material may be eliminated by rectum until the bowel is emptied of its content below the point of obstruction. The avoidance of the administration of hypodermics of pain-relieving drugs in cases of obscure abdominal distress merits reiteration since in 3 of the cases in this group obstruction was not diagnosed because of this error.

The importance of accurate diagnosis is borne out by the mortality rate of 43% in the cases where acute small bowel obstruction was not recognized, whereas in the group of correctly diagnosed cases a death rate of only 27% obtained.

It seems that the significance of the fatalities in the large bowel cases should be minimized, since most of these cases were nearly terminal upon admission to the hospital.

In an attempt to correlate the type of therapy employed with the results obtained in the small bowel group, mortality rates of 55%, 28% and 20%, following conservative therapy, combined conservative and surgical treatment, and immediate surgery, respectively, cannot be overlooked. It would appear that more cases should be submitted to immediate surgical intervention, since proportionately almost 3 times as many deaths resulted when a conservative regimen rather than surgery was adopted. This deduction seems further substantiated by the occurrence of 8 deaths from gangrene of the small bowel group in the 43 cases not treated by immediate operation. It is therefore essential that one exerts every effort to recognize gangrene of the bowel and exclude its presence before adopting the conservative measures in the management of any cases of bowel obstruction.

This is, at times, extremely difficult, but this complication will be recognized more often if we remember that hemorrhage and peritonitis, with their attendant symptoms, accompany gangrenous degeneration of the intestine.

The findings of an elevated leucocyte count and a high polymorphonuclear percentage in cases of gangrene is a helpful diagnostic aid. This blood change does not occur in early uncomplicated obstruction.

It is lamentable that the death rate from acute intestinal obstruction has not been appreciably lowered in recent years. However, when we consider that all of the patients in the group reported, who were soon operated on after the onset of symptoms, lived, the outlook appears hopeful. A low mortality following early treatment of bowel obstruction has been reported by other observers also.

It seems, then, that we are confronted with the problem of educating the public to promptly seek medical advice when the cardinal symptom of acute intestinal obstruction exists, namely, intermittent cramping abdominal pain.

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Incidence of Spirochaetes and Fusiform Bacilli in Throat and Gum Smears

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"BORRELIA vincenti . . . together with a fusiform bacillus, is found in small numbers in the mouths of most normal adults, particularly around the gingival margins and in the tonsillar crypts. They are very numerous in the pseudomembranous ulcerative inflammations known as Vincent's angina and Vincent's stomatitis, and may complicate other types of ulceration, such as diphtheria, syphilis or carcinoma" (Stitt[1])

"Vincent's stomatitis is well known to occur particularly in mouths traumatized by chronic irritants such as tartar or faulty dental restorations, or accompanying nutritional disturbances such as scurvy, or intoxications such as mercurial poisoning. Noma occurs most frequently in children's institutions, especially following epidemics of exanthematous fevers, or otherwise in undernourished children" (Gay[2]).

Rosenau[3] states, "Campbell and Dyas found a few Vincent's organisms in about 50% of all swabs taken from throats of troops at Bramshott. Reckford and Baker found only one carrier in 50 normal individuals, whereas fusiform bacilli and spirilla were found in 90% of the smears from diseased teeth in a dental clinic."

PRESENT STUDY

This study was made in order to determine to what extent spirochaetes and fusiform bacilli might be found in throat and gum smears of different groups.

Slides were prepared from material obtained by

* From the Arizona State Laboratory, Tucson.

swabbing the throat and gums. After fixing with heat, the slides were stained with crystal violet-ammonium oxalate, as used in Hucker's modification of the Gram stain. The slides were examined for the presence of spirochaetes and fusiform bacilli. If no organisms, or a few (an average of less than 1 per microscopic field) were present, the results were recorded as negative; when several organisms were found per field, the results were reported as positive.

The specimens came from the following groups:

1. School children, chiefly white, from homes of upper social and economic levels. Average age 12 years.
2. School children, all colored, large percentage from families of low economic levels. Average age 13 years.
3. Enlisted men, Arizona National Guard. Chiefly white, with small percentage of Mexicans. Average age 20 years.
4. School children, chiefly Mexican, from families of low social and economic levels. Average age, 11 years.
5. School children, all Indians, pupils at a boarding school. Average age 13 to 14 years.
6. College students, girls. Average age 19 years.
7. College students, boys. Average age 20 years.

TABLE I.

INCIDENCE OF SPIROCHAETES AND FUSIFORM BACILLI IN THROAT AND GUM SMEARS

Group No.	1		2		3		4		5		6		7		All groups	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Both smears negative	81	81	59	59	94	73	40	40	59	59	68	75	64	64	465	65
Throat smear positive	2	2	10	10	6	5	5	5	3	3	8	9	10	10	44	6
Gum smear positive	9	9	15	15	18	14	31	31	29	29	11	13	14	14	127	18
Both smears positive	8	8	16	16	11	8	24	24	9	9	3	3	12	12	83	11
Totals	100	100	100	100	129	100	100	100	100	100	90	100	100	100	719	100

DISCUSSION

The preceding table shows that 465 (65%) of the group (719) did not harbor spirochaetes and fusiform bacilli at the time the specimens were taken. Thirty-five per cent (254) showed the presence of these organisms in gum or throat smears, or both:

	Number	Percent
Throat smear only	44	6
Gum smear only	127	18
Both smears	83	11
	254	35

The lowest incidence of these organisms occurred in a group of school children from homes of superior social and financial levels; the highest incidence was among a group of Mexican children from homes of low social and economic levels These organisms were found in 41% of a group of colored school children and Indian children at a boarding school.

Among young adults, the incidence was:

Enlisted men, Arizona National Guard	27%
College students, girls	25%
College students, boys	36%

These results would indicate that among school children and young adults one might expect to find significant numbers of spirochaetes and fusiform bacilli in approximately 35% of the throat and gum smears examined.

University of Arizona

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Furthermore, at this season, the mother is likely to bundle her baby to keep it warm, shutting out the sun from Baby's skin; and in turning the carriage away from the wind, she may also turn the child's face away from the sun.

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LESLIE M. SMITH, M. D.

At the final meeting of the year 1939 of the El Paso County Medical Society, December 11, Dr. Leslie M. Smith succeeded Dr. James J. Gorman as president of the El Paso County Society. Dr. Smith had served the previous year as president-elect.

The new president was born in Alabama, August 8, 1885. His early schooling and college work were obtained in his native state. He was graduated from Vanderbilt University in 1917 with the degree of Doctor of Medicine. Upon graduation he was commissioned in the Medical Corps of the United States Navy, serving for the duration of the World War. After leaving the service he became associated with the Buie Clinic of Marlin, Texas, where he practiced for 4 years. In 1924 and 1925 Dr. Smith took graduate training in the specialty of dermatology and syphilology at Columbia University and Stanford University. In 1925 Dr. Smith began the practice of dermatology and syphilology in El Paso. The winter of 1931 was spent in graduate study at the New York Skin and Cancer Hospital.

Dr. Smith is married and has one son. He is a member of the El Paso Rotary Club. Professional memberships are as follows: El Paso County Medical Society, Texas State Medical Association, American Medical Association, Southwestern Medical Association and the Southern Medical Association. Dr. Smith is a Diplomate of the American Board of Dermatology and Syphilology, and is currently president of the Texas Dermatological Society. He is a Fellow of the American Academy of Dermatology and Syphilology and the American College of Physicians.

LICENSURE OF ALIENS

Of timely interest is a recent decision by the courts of Texas, upholding that portion of the Medical Practice Act prescribing citizenship as a condition precedent to medical licensure.

A test case was brought by an El Paso-Juarez alien against the Texas State Board of Medical Examiners, petitioning the courts to compel the board to admit this individual to examination. The pleadings attacked the validity of the portion of the Medical Practice Act requiring examinees to be citizens. The plaintiff's contention of invalidity was denied, and the act upheld.

A significant portion of the defendant's brief is quoted: "There is no good reason why restraints should not be placed upon the practice of medicine as well as the law. The public are more directly interested in this than in the practice of law; and persons who engage in this profession require a special education qualifying them to practice. A great majority of the public know little of the anatomy of the human system, or of the nature of the ills that human flesh is heir to; and there is no profession, no occupation, or calling, where people may more easily or readily be imposed upon by charlatans. It is almost an every-day experience that people afflicted with disease will purchase and swallow all sorts of nostrums, because some quack has recommended it."

Thus it is now established that in Texas aliens may not be licensed to practice medicine. And once more it is affirmed that the practice of medicine is not a right, but a privilege granted by the State, and therefore subject to restrictions and qualification as desired by the State.

WISDOM'S FOUNT

The tolerance of fallacies is but intellectual shirking. Wouldn't the practice of medicine be in a fearful mess if it were to be managed by the general public, through their chosen representatives, the politicians? Witness the public tolerance of such rubbish as chiroquacktic! Read this sucker-bait from the columns of the august El Paso Times.[1]

What is a cold?

"Why a 'cold' should be so called is an unsolved mystery," said "Drs." Blank. "Because it is really an inflammation, and one of the characteristic features of inflammation is that excessive heat is present. Then a 'cold' by all rights should really be named 'hot.'

"An intelligent person considers what it is that produces the inflammation or 'hot,' not only in mucous memberanes of nose and throat, but also in other parts of the body.

"Apparently a cold is the result of accumulation of poisonous materials within the body for a period of time preceding the cold. The amount of poisons which accumulate and the rapidity in which it is formed, determines the frequency and severity of colds. If the elimination or excretory organs of the body are functioning normally, these poisons will not be accumulated or held back into the system, and colds will rarely manifest themselves.

"It is apparent then, that in order to get at the real cause of colds the chiropractor must restore the normal transmission of life energy from the brain, over nerves, to the various excretory organs so that they may again perform their function normally. With the restoration of normal function to excretory organs so that wastes and poisons may be eliminated from the body, there will be no need for colds and for the excretion of waste fluids through mucous membranes of nose, throat and bronchial tubes," said "Drs." Blank.

There's no assurance like that of ignorance, is there?

Just one more question, and we'll dismiss class—why in the world aren't newspapers as diligent and careful in checking questionable advertising claims as they are in verifying the contents of their news columns?

1. El Paso Times, January 8, 1940.

PHYSICIANS IN WAR

No higher duty can be recognized that that of serving one's country when that land is endangered by enemy forces. Such a man as Sir Frederick Banting, of Toronto, has given up his private activities to join the armed services of his country.

Many of the younger physicians of the United States have signified their availability for military service by enrolling in the reserve corps of the Army and the Navy. Too few of the older physicians are holders of reserve commissions. Their guidance and skill may be of vital necessity in case of war. Probably many are hesitant to contemplate possible monetary losses sure to follow should they be called to give up their private practices and answer the first call if war comes.

Somehow, provision must be made, if war comes, to protect the patriot who leaves a good-paying practice to his competitors, and goes into the service of his country. Certainly it is unfair for one man to give up all he has built in a community, only to have it snapped up by stay-at-home competitors. Some plan must be devised, perhaps similar to the one now in use in England, whereby protection and equality is afforded all.

The English plan requires physicians not in the service of the government to turn over to a central fund all their fees above their average yearly income. From this fund pro-rata divisions are made to the physicians in the armed forces.

Should America's older physicians be assured that some such provision would be made for them in case of their being called to war, no branch of the national defense forces would be henceforth lacking in experienced officer personnel.

1940 CENSUS

The Sixteenth Decennial Census to be taken in 1940 will bring up to date the statistical record of the United States, the foundations of which were laid in the first Decennial census taken in 1790. The 1790 Census and all succeeding censuses were provided for in the Constitution. The practical reason for the first census was the determination of representation in Congress.

The first census in 1790 showed a total population—in 17 states—of 3,929,214. At that time Virginia was the most populous state with 747,610. Pennsylvania was second, with 434,373; North Carolina third, with 393,751; Massachusetts fourth, with 378,787; New York 340,120 and Maryland 319,728. The entire population of the United States at that time was only a little larger than the population of Chicago today. The entire population of New York State was about equal to today's population of Rochester alone.

The most vital indicator of the future of America is the birth and death record of the Census Bureau. The birth rate which in 1915 exceeded 25 babies per 1,000 population has dropped to 17. Despite a great increase in total population during that time the actual baby crop dropped from over 2,621,000 in 1921 to 2,203,000 in 1937. In the eight years from 1921 to 1928 inclusive, 2,200,000 more babies were born than in the subsequent eight years, ending with 1936.

And to gauge the future of the nation it is important to know where births and deaths are taking place. The states which have a birth rate in excess of 20 are New Mexico, Alabama, Arizona, Georgia, Idaho, Louisiana, Mississippi, North Carolina, South Carolina, Utah, and West Virginia. The states which have a birth rate of less than 15 are Connecticut, Illinois, Massachusetts, Missouri, New Jersey, and New York.

The advance of medical science in the conservation of life has been tremendous. Census death records show that the great human enemies, such as tuberculosis, typhoid, smallpox, measles, scarlet fever, diphtheria, influenza and pneumonia, erysipelas, malaria, bronchitis, diarrhea and enteritis,

(Continued on page 31)

Special Section

Arizona State Medical Association

PRESTON T. BROWN, M. D., *Associate Editor*
403 Professional Bldg., Phoenix, Arizona

COUNTY MEDICAL SOCIETY ELECTIONS

The following county medical societies report election of officers for 1940 to be:

COCHISE COUNTY MEDICAL SOCIETY
President—Dr. C. H. Hunt, Bisbee
Vice-Pres.—Dr. H. M. Helm, Douglas
Sec.-Treas.—Dr. Geo. H. Hess, Bisbee

GRAHAM COUNTY MEDICAL SOCIETY
President—Dr. F. W. Butler, Safford
Vice-Pres.—Dr. Henry H. Riklin, Safford
Sec.-Treas.—Dr. Lyle A. Condell, Safford

GREENLEE COUNTY MEDICAL SOCIETY
President—Dr. C. P. Austin, Morenci
Vice-Pres.—Dr. Karl L. Fife, Duncan
Sec.-Treas.—Dr .C. H. Laugharn, Clifton

SANTA CRUZ COUNTY MEDICAL SOCIETY
President—Dr. Z. B. Noon, Nogales
Sec.-Treas.—Dr. Chas. S. Smith, Nogales

YAVAPAI COUNTY MEDICAL SOCIETY
President—Dr. C. E. Yount, Jr., Prescott
Vice-Pres.—Dr. E. B. Jolley, Jerome
Sec.-Treas.—Dr. C. E. Yount, Prescott

THE ARIZONA HOSPITAL ASSOCIATION, nearing its first birthday, is holding its Annual Program at Hotel Adams, Phoenix, on February 2nd and 3rd. A cordial invitation is extended to all physicians to attend any of these meetings. The schedule is as follows:

PROGRAM OF THE
ARIZONA HOSPITAL ASSOCIATION
The Adams Hotel
Phoenix, Arizona, February 2-3, 1940

Thursday, February 2

9:00 A. M.—Invocation—Dr. Rollo C. LaPorte, Pastor, First Presbyterian Church, Phoenix, Arizona.

9:10-9:45 A. M.—President's Address, "The Arizona Hospital Association, Its Scope and Purpose"—C. G. Salsbury, M. D. Medical Director, Sage Memorial Hospital, Ganado, Arizona.

9:45-10:30 A. M.—"Group Hospitalization, Its Plan and How It Works"—Paul Elliott, D. D. Administrator Hollywood Presbyterian Hospital, Hollywood, California.

10:30-11:15 A. M.—"Nursing Problems in Small Hospitals"—Charles W. Sechrist, M. D. Administrator Flagstaff Hospital, Inc., Flagstaff, Arizona.

11:15-12:00—"The Importance of Keeping Adequate Records"—Genevieve Hayes, Record Librarian, Pima County Hospital, Tucson, Arizona.

2:00-2:45 P. M.—Round Table—"The Problems of the Small Hospital."
Leaders: H. S. Barnes, President of the Association of Western Hospitals.
Paul C. Elliott, Administrator Hollywood Presbyterian Hospital, Hollywood, California.

2:45-3:15 P.M.—"The Industrial Commission and the Hospitals of Arizona." Carl Holmes, Member Arizona Industrial Commission.

3:15-4:00 P. M.—"The Relation of Voluntary Hospitals to the Federal Government's Health Program." H. S. Barnes, President of the Association of Western Hospitals, and Superintendent of the Latter Day Saints Hospital, Salt Lake City, Utah.

4:30 P. M.—Panel Discussion.
The Hospital Question Box.

7:30 P. M.—The Banquet.
Introduction of Distinguished Guests.
Banquet Address — Bishop Walter Mitchell of the Episcopal Church.

Friday, February 3

9:00-9:45 A. M.—"The Development and Management of Hospital Personnel'—J. O. Sexson, Superintendent Good Samaritan Hospital, Phoenix, Arizona.

9:45-10:30 A. M.—"The Importance of Spiritual Care for Hospital Patients". Rt. Rev. Monsignor Thomas J. O'Dwyer, General Director, The Catholic Welfare Bureau, Los Angeles, California.

10:30-11:15 A. M.—"The Importance to Hospitals of Good Public Relations Education." Roland Davison, M. D., Medical Director The Desert Sanitarium, Tucson, Arizona.

11:15-12:00—"Trends in Nursing Education and Requirements". Minnie C. Benson, Secretary Arizona State Board of Nurse Examiners.

2:00-2:45 P. M.—"Responsibility of the Hospital for Health Education and First Aid Programs." Dr. Charles A. Thomas,

The President's Page

MEMBERSHIP

THIS is the season of the year when we are told annual dues to our organization are payable. To the physician this is a privilege rather than an obligation, for, in addition to its being an honor to belong to such a professional organization, the annual dues provide each member:

1. Membership in his county, state and national organizations.

2. Defense for himself and his good name against malpractice suits.

3. The lowest indemnity insurance rates obtainable.

4. Our monthly medical journal, SOUTHWESTERN MEDICINE, a high ranking medical publication.

5. An annual scientific meeting with outstanding guest and local speakers.

6. The services of the officers and committees of the Association, who are constantly at work and alert to the best medical, economic, social and political interests of the profession in the present-day struggle for a place in the sun.

7. A full-time Association office, 202 Security Bldg., Phoenix, through which the officers and committees function and their work co-ordinated, and where YOU and YOUR SOCIETY may call for information and aid.

8. Immediate recognition by the various insurance companies, commercial firms, and the general public, that because of such membership a physician is reputable and qualified to serve.

9. Eligibility for entrance to special societies and postgraduate courses—we should say "sole" eligibility, for, without membership, there is no eligibility for entrance.

10. A happy means for social amenities with our confreres, for rubbing elbows and being friends with our professional associates and their families.

Together we march forward in behalf of the public we serve.

In all sincerity,

Thos. L. Smith M.D.

PRESIDENT, ARIZONA STATE MEDICAL ASSOCIATION.

Medical Superintendent, Southern Pacific Hospital, Tucson, Arizona.

2:45-3:15 P. M.—"How the Small Hospital Can Best Meet the Needs of the Community". Mrs. H. W. Squibb, Morris Squibb Hospital, Safford, Arizona.

3:15-4:30 P. M.—Business Session.
Reports of Committees and Election of Officers.

PROFESSIONAL NEWS

Dr. Charles W. Sult, Jr., has located in Phoenix to enter practice with his father, Dr. Charles W. Sult, Sr. Dr. Sult graduated from the Creighton College of Medicine in 1936, spending 1 year in rotating internship at the Los Angeles County General Hospital, followed by 2½ years residency at the same hospital in neurology and psychiatry. In addition to his private practice in neurology and psychiatry, Dr. Sult is serving as a consultant at the Arizona State Hospital in that specialty.

LOCAL USE OF SULFAPYRIDINE IN THORACIC EMPYEMA

DR. Wm. F. CORMACK

CASE No. 49266:—A negro boy, age 3 years, entered the Hospital on the 24th of June, 1939, with complaints as follows: cough of two weeks' duration, high temperature, rapid respiration for the past few days, painful micturition and anorexia. The symptoms began about two weeks before admission to the Hospital with a severe cough and some nausea and vomiting, loss of appetite and high temperature. Under all sorts of therapy the patient did not seem to recover and the temperature became chronic as did the loss of appetite. Rapid respiration and crying on urination were noted as later developments. The past medical history was negative. The family history and social history were negative.

Examination showed a pale, fairly well developed, well nourished colored male infant without any gross deformities, but in a state of marked malaise. The head and neck examination was essentially negative. The thorax and lungs revealed unequal expansion, dullness with marked coarse moist rales of the lower right base, and limited expansion on the left. The heart rate was rapid, no murmurs, thrills or irregularities noted. There was marked distention of the abdomen, no viscera palpated and no fluid present. G. U. and extremities, negative to examination.

DIAGNOSIS: Pneumonia of the lower right lobe.

X-ray taken on the 26th, (single film), revealed the chest to show complete density on the left side with mottling of the right side. The heart seemed displaced to the right. It was concluded that there was a left pleural effusion with mottled densities on the right, probably bronchopneumonia on the right.

On the 1st of July, under general anesthesia, a small section of the 8th rib was removed in the posterior axillary line and No. 18 catheter was placed, encountering a small amount of pus. Further exploration with a needle did not discover the balance of the pus pocket. The patient returned to the ward in good condition.

On July 3rd, x-ray, single film, showed compression of the right lung due to displacement of the heart, fluid in the left pleural cavity extending up to the 2nd rib, and tube in place at the level of the 10th rib posteriorly. Diagnosis was left pleural effusion with displacement of the heart to the right and compression of the right lung.

On the 11th, chest plate revealed no fluid level, with the patient being in an upright position. The entire left side of the chest showed a homogeneous density with loss of outlines of the diaphragm. Conclusion made was no fluid level with the patient sitting. The left side showed density indicating pus or fluid.

On the 18th, anteroposterior and lateral views showed the drainage tube in the sulcus posteriorly on the left. The fluid shadow apparently had disappeared. There was some cloudiness and mottling in the lung field probably due to thickened pleura, partial atelectasis or pulmonary inflammation, one or alll. On the right side there was some mottling about the hilum but definitely less than was present on the previous examination of July 11th. The conclusion was of draining empyema pocket on the left with some pulmonary inflammation, in the adjacent lung tissue.

On the 20th, thoracotomy was performed under general anesthesia, the scar of the former incision being excised and a one-inch section of the 8th rib removed beside the small gap which still remained from the previous resection. The parietal pleura was opened and the lung stripped away from the chest wall. It was found to be adherent in all directions but was freed so that a free pocket was encountered posteriorly along the rib but no pus was found. On exploration upward to about the level of the 6th rib in the mid scapular line, a free pocket was entered which contained pus, probably 50 to 100 c.c.s. This pus was creamy and thick. Drainage tube was inserted and the wound closed in the usual manner and then the wound irrigated with normal saline.

On September 1st, anteroposterior and lateral views of the chest revealed some density in the lung field of the left base, and diffuse cloudiness probably due to pleura thickening. The shadow did not suggest fluid in the sulcus. There was a definite regression in the pulmonary shadows elsewhere. The conclusion was that of an empyema pocket after removal of the tube.

Urine specimen on admission to the hospital was not remarkable beyond a trace of albumin and a positive sugar. Later examination revealed no albumin but the sugar was still present in the amount of 3/10 per cent. Blood count on admission was 60% hemoglobin, 2,700,000 red blood count, 12,000 leukocytes, 22% lymphs, 2% monos and 76% polys. Count on the 26th of August revealed 60% hemoglobin, 3,500,000 reds, 8,000 leukocytes, of which 48% were lymphs and 52% polyps. Sputum examination on June 25th revealed many leukocytes, no acid fast bacilli, but a mixed flora-predominately staphylococci and a few streptococci, but some gram positive diplococci were found. Throat culture was negative for diphtheria. Stomach contents showed no tubercle bacilli, and culture of the empyema drainage on the 20th of July, revealed gram positive diplococci which were morphologically pneumococci. Kahn test was negative. The patient was given one blood transfusion of 200 c.c. of blood on the 22nd of July.

PROGRESS NOTES: On June 26th, the breath sounds were almost absent on the left side, and the heart was pushed to the right. On the 28th, fluid was about the same, perhaps slightly increased. On the 30th, fluid was ready to be removed. On July 5th, drainage tube was removed and no pus was seen. The patient was resting comfort-

Read at regular staff meeting St. Joseph's Hospital, Phoenix, Arizona, November 13, 1939.

ably. The breath sounds on the left side were distant, more audible at the apex than at the base. On the 12th the patient became febrile and the left chest was dull to percussion. On the 20th, pus pocket was found and drainage tube inserted. On the 22nd the patient was transfused and on the 24th patient showed a little improvement since the transfusion. There was purulent drainage from the chest. On the 29th the temperature returned to normal, and the patient was better. Purulent drainage was continuous. On August 5th, the patient's temperature continued to rise a little, and the drainage was slightly decreased. On the 20th of August we began irrigating the cavity with sulfapyridine solution. On the 22nd, the condition was about the same and the cavity was still draining. On the 24th, the child seemed very active and bright. The condition was good. The cavity was probed in the morning and a moderate drainage of purulent material was obtained. The cavity was getting smaller to the probe. The organisms were also decreasing on the daily smears. On the 1st of September, a small amount of purulent drainage from the wound was present but the patient was up and about, eating well and improving daily. On the 4th of September drainage was entirely serous in type and the patient was apparently about recovered. On the 6th, drainage from the chest wound was practically healed and the patient was up and about, playing. Condition excellent. On the 11th the patient went home, apparently cured.

On admission to the Hospital the patient was given sulfapyridine grs. 2¾ every 4 hours. Sputum typing also ordered, also gastric aspiration for tuberculosis. On the 11th, order left to measure the amount of Dakins solution used to fill cavity in order to determine the size of the cavity. On the 20th, irrigation with the following solution was begun,—one tablet of sulfapyridine, 7¾ grains was dissolved in 1,000 c.c. sterile water. The supernatant fluid was used to irrigate well with a little force, using a catheter and bulb syringe. After a thorough washing, the patient was kept lying on the right side for one hour and the cavity left full of the solution. On the 28th, irrigations discontinued. On the 3rd of September, Wangensteen to the thoracic drain was ordered and on the 4th the patient was up and about. On the 11th, patient was discharged.

SUMMARY

This case is presented as it seems to indicate that local use of sulfapyridine produced rapid improvement in empyema. The local use of this drug has not been previously reported in this connection, as far as I can ascertain.

TREATMENT OF PNEUMONIA WITH SULFAPYRIDINE

M. W. MERRILL, M. D.
Phoenix, Arizona

WHENEVER a new therapeutic agent comes into general use, it is received in various ways by the Medical Profession. Some accept it cautiously, others rapidly and freely, and still others adopt its use only as repeated clinical and experimental investigations reveal its true value—its possibilities and its limitations.

Thus it has been with Sulfapyridine, a drug which has rapidly assumed a place of major importance in the treatment of Pneumococcic infections. Since the original work on the effect of 2 (p. aminobenzensulfamido) pyridine hereafter and popularly known as Sulfapyridine, on pneumococcic infections in mice, reported by Lionel Whitby, of London in May, 1938, a veritable flood of reports on the value of this drug have been published. And as has occasionally happened in the history of new drugs, the vast majority of the reports bear out very well the contentions of the earliest investigators.

In view of the high mortality rate, it has been thought that a brief review of cases treated to date with this drug may add, in small measure, to our knowledge of its use. I also believe, in continuation of the splendid review on the treatment of pneumonias presented before this society a few months ago, that it is of value to further study this common and serious disease.

A brief review of the literature shows a consistancy of the reports on the value of the drug. Among the earliest reports were those of Evans and Gailsford of Burmingham, England, who treated 100 unselected cases with a mortality of 8%. In 100 unselected cases in their control group, the mortality was 27%. The standards for dosage laid down by these men are being followed by practically all Doctors using the drug.

In this country Williams and Morgan of Nashville, Tennessee have reported 50 treated cases, with only one death. Seven of these cases had a Bacteremia and six recovered. Hodes, Stifler, and associates have reported on the treatment of pneumococcic infections in 71 children. There were no fatalities in their series. Thirty-three children had primary pneumonias and thirty-eight had pneumonia following measles. The drug was apparently equally efficacious in both types and in practically all cases the children were cinically well in 48 hours. No empyema developed in this series.

Barnett, Hartman, Perley, and Ruhoff also report on the treatment of pneumococcic infections in children. They treated 23 patients, all of whom recovered. They had very little trouble with toxic reactions and advise use of the drug.

Wilson, Spreen, and others treated 70 cases of primary and secondary pneumonias in children. Thirty-five received Sulfapyridine and 35 did not. There was no mortality in either group, but the sulfapyridine cases made a much prompter recovery.

Quite recently Smith and Needles, of Detroit, have reported 50 consecutive cases of lobar pneumonia treated with this drug with a mortality of 8%.

What is perhaps the most extensive and complete report published so far in this country is that of Pepper, Flippin, Schwartz, and Lockwood, of Philadelphia. These men have been collecting clinical data on Sulfapyridine since shortly after it became available in this country. They have published several previous reports, their last being on

Read before Maricopa County Medical Society, October 1, 1939.

400 cases of typed lobar pneumonia. In this series they have a mortality of 7% of all cases.

This mortality and their reports on complications and toxicity of Sulfapyridine, agrees in the main with other widely separated investigations. Every case was definitely established as a pneumonia by clinical and laboratory investigation and every case was typed. X-ray examination was made in 66% of the cases and blood cultures were taken in 94. Patients who died inside of 12 hours after treatment was begun are not included. A few received serum as well as Sulfapyridine and they are also excluded. Careful analysis of the fatal cases showed they were either moribund on admission or had unrelated complications which were factors in producing a fatal result.

In this report today, I am presenting 25 cases of lobar pneumonia. Fourteen of these cases were treated without Sulfapyridine and four died, a mortality of 28.5%. Since April, 1939 I have treated eleven cases of lobar pneumonia with Sulfapyridine with one fatality, a mortality to date of 9.1%. I have excluded from this report any pneumonias not typically primary in type. I have used Sulfapyridine in a few instances in secondary and post-operative pneumonias with no fatalities as yet.

In presenting these cases, certain facts must be made clear. In the first place, these cases have not been treated as objects of experimental research. In the majority of them the economic question has been a vital factor. They have been treated with the view in mind of decreasing morbidity and hospitalization expense to a minimum. Any laboratory work essential to the welfare of the patient has not been left out, but on cases which have responded promptly, x-rays, blood counts, blood cultudres, etc., have been kept at a minimum.

The four fatal cases who did not receive Sulfapyridine will be briefly reviewed. The first was a 79 year old male who had a right lobar pneumonia type No. III. He entered the hospital moribund and died within two hours of admission.

Case No. 2 was a male, age 38, who had been acutely ill seven days before admission. He had a type III left lobar pneumonia and his pulmonary condition was complicated by a peptic ulcer. He was given 100,000 units of serum, but not until nine days after the onset of his illness. He received Sulfanilamide also with little effect and expired on the eleventh hospital day. There was no autopsy.

Case No. 3, male, age 49, had a pre-existing chronic nephritis. He was admitted on his seventh day of illness with a type No. I, right lobar pneumonia. No serum was given and he expired four days after admission. No autopsy was obtained.

Fatal case No. 4 was a male, age 55, who was admitted five days after the onset of a right lobar pneumonia type No. I. He was given Sulfanilamide but no serum. His pneumonia was never very extensive nor was he apparently very toxic. On his third hospital day he developed an auricular fibrillation. He expired on the tenth day after admission and at time of expiration, was thought to be making a nice recovery. No post was obtainable.

The lone mortality in the Sulfapyridine series was a white male age 47. He had been ill for two weeks before admission and on initial examination was found to have an extensive bilateral basal pneumonia, lobar type and fluid in the left pleural space. These findings were corroborated by x-ray examination. Sputum typing gave no reaction on epeated attempts and two blood cultures were negative. Many pneumococci were found in the sputum. This patient received a total of 30 grams of Sulfapyridine without apparent toxic effect, but expired on the ninth hospital day. Autopsy revealed multiple abscesses and patchy consolidation of entire right lung, a collapsed left lung and a fibrous pleuritis and hydrothorax on the left. Before death the left pleural cavity was aspirated two times.

A quick analysis of the ten recoveries in the series not treated with Sulfapyridine reveals the following salient points: Seven males and three females were treated, age limits were from 1½ to 51 years, with the majority occuring in younger people. Four of the cases were typed, and of these, two received serum. No type reaction was obtainable in three cases, and three were not typed. The average period of hospitalization was 11.9 days. X-ray examination was made in three cases. Empyema developed in one case and this was cleared up by repeated aspirations. Three cases were given Sulfanilamide, but its effect was not noticeable. Case No. 8, female age 20, had arrested pulmonary tuberculosis. This was the only cose which had a special nurse. She had a type No. VII pneumonia and was given 160,000 units of serum. I credit this with being a vital factor in her recovery. It is also interesting to note that repeated sputum examinations in this case failed to reveal a typable organism and that only when a positive blood culture was obtained could the correct typing be secured.

In the Sulfapyridine-treated cases, nine were males and one female. The ages varied from 11 to 89 years. In this group the ages were spread out between these extremes rather evenly. Three of th cass were typed and in four no type reaction could be obtained. Whether or not the administration of Sulfapyridine before collecting the sputum was a factor here, has not been established. In every case the pneumococci was the predominant organism and in every case the findings were typically those of a lobar pneumonia. There was one type I, one type II, and one type XI. The average period of hospitalization was 5.3 days as compared to 11.9 days in the untreated cases. X-ray examination was made in only one case.

PRESENTATION OF CASES

Case No. 1, white male, age 11 years, had been ill for six days before admission. Onset was sudden with high fever, chest pain and cough. White

blood count was 14,200, 10% non-filaments. Diagnosis was right lobar pneumonia. Sulfapyridine was started and recovery was prompt.

Case No. 2, male, age 63, became suddenly and acutely ill three days before admission. Onset was with a severe headache, chill, and chest pain. Examination on admission revealed a right lower lobar pneumonia, w.b.c. was 42,200, 100% polys., no lymphs seen, 8% non-filaments. Sulfapyridine was started at once and recovery was rapid.

Case No. 3, white male, agew 17, had been ill for four days before admission. Onset here was sudden with chest pain, fever, chill and cough. Expectoration was profuse on admission. Clinically, a right lobar pneumonia was present, w.b.c. was 22,700 polys. 84 and 14% non-filaments. Sputum showed many pneumococci, but no type reaction. Sulfapyridine started at once and recovery was uneventful.

Case No. 4, male, age 60. Ill one week before admission. Had a chill and developed chest pain three days before admission. Diagnosis on examination was left lower lobar pneumonia. W. B. C. was 17,300, sputum full of pneumococci, no type reaction obtainable. Sulfapyridine started at once with apparent effect. Recovery uneventful.

Case No. 5, male, age 37. Had been ill for 24 hours when I saw him at home. Findings were typical of a left lobar pneumonia. Onset had been sudden with fever, chest pain, and expectoration. Sputum rapidly became bloody. Patient hospitalized and Sulfapyridine started at once. W. B. C. on admission was 31,800, 10% non-filaments. Recovery was rapid.

Case No. 6 was a male, age 17, ill three days before admission. Onset was fairly acute and findings were typical. Examination of the sputum revealed type number I infection. Sulfapyridine was started and recovery was rapid. W. b. c. was 26,400, non-filaments 18% on admission.

Case No. 7 was a male, age 41, who became acutely ill three days before admission. Initial examination revealed a left lobar pneumonia with typical findings as regards pulse, respirations, temperature and chest pathology. W. b. b. was 24,100, 18% non-filaments and sputum yielded a type No. II pneumococcus. Sulfapyridine was started at once and patient responded rapidly.

Case No. 8, a white female, age 14, had suffered from paint in the right chest, fever, cough, and expectoration, for four days. Examination revealed consolidation over right upper lobe. Sputum showed many pneumococci, but gave no type reaction. Sulfapyridine was started and within 24 hours the patient appeared vastly improved. Fever continued for three days, but recovery was uneventful.

Case No. 9, a Mexican male age 89, had been ill for five days and on admission appeared very toxic. Considerable consolidation was found in left lung and there were few moist rales in the right lung. Cardiac irregularity was present and patient was digitaliezd. Sputum was full of pneumococci, but no type reaction could be secured. W. b. c. was 12,700 with 10% non-filaments. Sulfapyridine was started and patient responded in characteristic fashion. He was well enough to go to a rest home on the sixth day following admission.

Case No. 10, a white male, age 52, was admitted within 36 hours of the onset of his illness. The diagnosis was questionable, but tentively called right lobar pneumonia and Sulfapyridine started. X-ray examination was made and right basal consolidation corroborated the diagnosis. Sputum was sent to laboratory and type number XI reported. Patient's clinical improvement was marked within 36 hours and recovery was uneventful.

As is clearly evient, the rapid drop in temperature, pulse, and respiration seems to be the outstanding effect of Sulfapyridine and this is characteristic of practically all reported cases. Marked clinical improvement accompanies the temperature fall. It is indeed dramatic to observe the changes which occur in these acutely ill individuals in such a short time. To find the pulse slow and steady, the temperature down, the cough better, the chest pain improved and the respirations slow within 24 to 36 hours after the drug is started has been a constant observation in this small series.

Chest findings on physical examination clear up slower than the temperature drop and the stethoscope often reveals complete consolidation in patients clinically vastly improved. Investigators are not agreed as to whether or not Sulfapyridine increases the rate of resolution of the pneumococcic process due to the fact that physical findings remain evident for variable periods of time after signs of toxemia disappear. The fact that a dramatic crisis may appear at variable periods of time in untreated cases makes this point a hard one to evaluate.

Practically every case showed some signs of toxicity to the drug. These varied from anorexia to severe nausea and vomiting and in three cases, marked mental confusion. Reduction of the dosage or stopping the drug temporarily resulted in all symptoms clearing up promptly. We noted no cases of kidney damage, but Southworth and Cooke have reported three cases of hematuria, abdominal pain due to ureteral obstruction, and nitrogen retention in Sulfapyridine treated cases. These cleared up promptly when the drug was stopped. Stockinger has demonstrated Sulfapyridine crystals in the urine of treated patients and Gross, Cooper, and Lewis have produced urinary concretions in varying degrees of renal damage in rats with the drug.

Cyanosis, leucopenia, and hemolytic anemia have been reported as complications of Sulfapyridine therapy by a number of investigators, but all agree that the effect is temporary and improvement occurs rapidly when the drug is stopped. I feel that the toxic reactions following Sulfapyridine are less than those observed with Sulfanilamide. Pepper,

Flippin ,and associates make the same report in their observation of 400 cases.

In this series, no patient was so toxic and ill that the drug could not be given by mouth. If this occurs, the soluble sodium salt can be given intravenously as reported by Marshall and Long. Marshall also reports that the nausea and vomiting due to Sulfapyridine is apparently of central origin as it occurs when the drug is given intravenously as frequently as when given orally.

Giving the drug in milk, water, or fruit juices, the use of sodium bicarbonate, the use of sedatives, intravenous saline and dextrose, and administration of nicotinic acid have all been recommended to lessen nausea and vomiting. I administered the drug along with a raw egg beaten up in orange juice to two cases with good results. Skin rashes, drug fever, and other rarer complications were not observed in any of these cases.

The dosage formula was the same in all adults, that is two grams on admission, two grams in three or four hours, and then one gram every four hours until 25 grams was given or the drug ordered stopped. Most cases received from 17 to 20 grams total and one case which terminated fatally was given 30 grams. This range of dosage is about an average of reported cases. Pepper and Flippin found that the longer the pneumonia had been present the less the Sulfapyridine needed to produce the desired effect and that cases over six or seven days old, rarely needed over fifteen grams of the drug.

No blood Sulfapyridine determinations were made in this series. As yet no investigators have been able to establish a definite relationship between blood concentration, dosage, and clinical results. Some patients excrete the drugs rapidly, others slowly. Absorption of the drug when taken by mouth seems inconstant and a high blood level does not necessarily mean a high toxicity. Pepper and associates have noted quick clinical results, and high toxicity associated with low blood concentration. On average dosage, their cases showed blood levels from 2.0 to 18.0 mgm. per 100 c.c. of blood.

It is evident that this series of cases is too small to permit drawing any very definite conclusions as to the ultimate value of Sulfapyridine. It hardly represents an average. There was only one female case out of ten who received the drug. In fact, there were only four female cases in the entire 25 which is not an average relationship. We must also remember that the virulence of pneumonia may vary quite widely from year to year and these cases may have been of lower than average severity. The cases were in the hospital too short a time for really adequate study and observation. Laboratory work was minimal in the group and only when correlated with the work of other men can the following conclusions be drawn:

1. That Sulfapyridine is an effective drug in the treatment of pneumonit due to the pneumococcus.

2. That a marked reduction of temperature, pulse ,and respirations, associated with clinical improvement, usually appears within 24 to 36 hours after administration is started.

3. That toxic reactions follow the use of the drug; that these reactions are potentially serious, but apparently subside quickly when the dosage is lowered or stopped.

From a study of these cases and a review of the literature, the following recommendations are made:

1. That treatment with Sulfapyridine be started as soon as a diagnosis of pneumonia is made.

2. That the sputum be typed as soon as possible in all cases and that a blood culture be done routinely.

3. That frequent urine examinations be done to avoid undue renal damage due to the drug.

4. That the blood picture be colsely followed by repeated hemoglobin, red and white cell determinations.

5. That x-ray examination be used whenever necessary to help establish the diagnosis.

6. That blood Sulfapyridine determinations be made a routine procedure in order that clinical observations and experimental studies may be more closely correlated in the future.

7. That an adequate fluid intake be maintained to aid in excretion of the drug.

In addition, to goes without saying that pneumonia demands the best we have in medical and nursing care. Specific serum theraoy will undoubtedly remain an important factor in treatment and the future may prove Sulfapyridine to be less valuable than anticipated at the present time.

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1940 CENSUS

(Continued from page 23)

cirrhosis of the liver, maternity deaths, diseases of infancy and nephritis, are gradually being conquered. Tuberculosis, which used to take 200 lives each year out of 100,000 population, now takes less than 55; typhoid is down from 36 to 2, and influenza and pneumonia combined are down from 200 to 110. Diphtheria is almost whipped—down from 40 to 2. In a little more than 35 years the deaths per 100,000 in these killers show a total net reduction of 542 per 100,000 population which would mean a saving of 704,600 lives this year that would have been claimed under the 1900 death rates.

ROSES TODAY

When newspapers become interested in the oft-times abstract aspects of public health, it is an encouraging, heartening spectacle to the man of medicine. Such an interest was recently shown by The El Paso Herald-Post in a survey of the sewage disposal procedures in El Paso.

The piece was intelligently written, restrained in presentation, loaded with facts. So gladly a sweet-smelling rose apiece is voted to The Editor, E. M. Pooley, and his reporter, Murray Heal. May their tribe increase!

(1) El Paso Herald-Post, January 12, 1940.

COMMUNICATIONS

Sir:

On behalf of the national officers of the American Red Cross I wish to transmit our deep appreciation for the splendid co-operation of the SOUTHWESTERN MEDICINE in the annual membership campaign of our organization.

Your generous contribution of space has enabled us to reach a larger audience of Americans. This support is doubly important this year because of the heavier responsibilities placed on the Red Cross by events at home and abroad.

Sincerely yours,

G. STEWART BROWN,

National Director, Public Information Service.

. . . . Peritoneal endometriosis, a condition which gynecologists consider a definite clinical entity, was brought to the attention of the profession by John A. Sampson, of Albany, N. Y. The disease arises from implantation of endometrial tissue disseminated through the escape of menstrual blood into the peritoneal cavity. . . .

—Shattuck Lecture—N.E.J. Med., Vol. 219, No. 16

NEWS

General

The general oral and pathological examinations (Part II) for all candidates (Groups A and B) will be conducted by the American Board of Obstetrics and Gynecology, meeting in Atlantic City, N. J., on June 8, 9, 10 and 11, 1940, immediately prior to the annual meeting of the American Medical Association in New York City.

Application for admission to Group A, Part II, examinations must be on file in the secretary's office not later than March 15, 1940. Formal notice of the time and place of these examinations will be sent each candidate several weeks in advance of the examination dates. Group A, Part II, candidates will be examined on June 8 and 9, and Group B, Part II, on June 10 and 11, 1940.

The annual dinner of the board will be held in New York City on Wednesday evening, June 12, at the Hotel McAlpin.

For further information and application blanks, address Dr. Paul Titus, secretary, 1015 Highland Building, Pittsburgh, (6) Pa.

A sectional meeting of the American College of Surgeons will be held in Los Angeles, Calif., with headquarters at the Biltmore Hotel, on January 29, 30 and 31. Eleven states, the province of British Columbia, and by invitation Mexico and the Hawaiian Islands, will participate. The states included are: California, Arizona, New Mexico, Colorado, Utah, Nevada, Oregon, Washington, Montana, Idaho and Wyoming.

Of special interest will be a series of group clinical conferences, to be held on Wednesday afternoon, January 31, at the headquarters hotel. The subjects will be: orthopedics, urology, obstetrics, gynecology, ophthalmology, otolaryngology, thoracic surgery, neurological surgery and cancer clinics.

In addition to the clinics and clinical demonstrations and conferences at the hospitals, scientific sessions, conferences and panel discussions will be held at the headquarters hotel. Among the subjects to be discussed are cancer, fractures, thyroid surgery, cardiovascular surgery, intestinal obstruction, craniocerebral injuries, thoracic surgery, hand injuries, prevention of postoperative pulmonary complications, and many more topics. Medical motion pictures will be shown daily. These will cover surgical technique and other aspects of general surgery, eye, ear, nose and throat surgery, and the other specialties.

The medical profession at large, as well as hospital trustees, superintendents, pathologists, dietitians and other hospital executive personnel will find much to interest them in the sessions and personal contacts at this meeting. Members of the state medical association are most cordially invited to attend. There will be no registration charge.

The Arizona state executive committee is: E. Payne Palmer, M. D., Phoenix, chairman; Roderick D. Kennedy, M. D., Globe, secretary; Charles A. Thomas, M. D., Tucson, counselor.

El Paso

A regular meeting of the Tumor Clinic was held Tuesday, December 12, 1939, at 1:00 p. m., at City-County Hospital. The program was as follows: 1. Branchial cleft cyst. 2. Hodgkin's disease. 3. Breast tumor. 4. Lymphadenitis, generalized. Reports on old cases were made.

A regular meeting of the staff of the City-County Hospital was held Wednesday, December 20, 1939, at 6:30 p. m., at City-County Hospital. The new officers elected were as follows: Chief of staff, J. Mott Rawlings, M. D.; vice-chief of staff, Robert Thompson, M. D.; secretary, R. P. Hughes, M. D.; efficiency committee, A. P. Black, M. D., and M. P. Spearman, M. D.

A regular staff meeting of the Hotel Dieu Sisters' Hospital was held Tuesday, December 5, 1939, at 12:10 o'clock in the auditorium of the Nurses' Home. Luncheon was served. The program was as follows: Thoracoplasty with Motion Pictures, Dr. F. P. Miller.

The following officers were elected: Chief of staff, Dr. B. F. Stevens; vice-chief of staff, Dr. E. A. Duncan; secretary-treasurer, Dr. J. D. Peticolas; chief of surgical service, Dr. J. L. Green; chief of medical service, Dr. E. W. Rheinheimer. Committees for the coming year have not yet been named.

El Paso County Medical Society met in its last regular session of 1939 on December 11 at Hotel Cortez.

Dr. James J. Gorman, retiring president, yielded the chair to the incoming head of the society, Dr. Leslie M. Smith.

The report of the co-ordinating committee was given by its chairman, Dr. F. O. Barrett. A plan of co-operation between the county medical society, the public school system and the city-county health unit was outlined.

The annual election of officers resulted in the following being named to serve for the coming year: President-elect, Dr. H. H. Varner; vice-president, Dr. Harry Leigh; secretary-treasurer, Dr. J. L. Stowe; censor, Dr. B. F. Stevens; chairman committee on medical economics, Dr. J. Mott Rawlings; librarian, Dr. Mildred Murray; representatives to board of managers of SOUTHWESTERN MEDICINE, Drs. Paul Gallagher and L. O. Dutton; chairman cancer committee, Dr. J. Leighton Green; members milk committee, Drs. A. P. Black and J. Travis Bennett; members nominating committee, Drs. W. W. Waite, R. B. Homan, Sr., and John Hardy; delegates to state medical association, Drs. R. B. Homan, Jr., and Felix P. Miller; alternate delegates, Drs. Charles E. Rennick and E. W. Rheinheimer.

AUXILIARY NEWS

El Paso

The regular meeting of the Woman's Auxiliary to the El Paso County Medical Society was held Monday afternoon, November 11, at the home of Mrs. S. G. Von Almen.

The guest speaker on the program was Dr. I. M. Epstein. His subject was, "The Child Guidance Clinic."

After the program the business session was held, with Mrs. Branch Craige, president, presiding.

Two resolutions were passed: (1) It was moved and seconded that the El Paso Auxiliary contribute their regular amount to the El Paso Tuberculosis Society for the year. (2) It was moved and seconded that resolutions of sympathy be sent to the families of (the late) Dr. J. W. Tappan and (the late) Dr. H. E. Stevenson.

The next meeting will be a luncheon at the Hilton Hotel, January 8, 1940. The meeting was adjourned and tea was served.

The hostesses assisting Mrs. Von Almen were: Mesdames J. Hal Gambrell, Frank Garrett, James J. Gorman, John B. Gray, Sigmund Haffner, John Hardy, C. M. Hendricks, Russell Holt, Ralph Homan, R. B. Homan, Jr., D. H. Huffaker, E. H. Irvin, W. R. Jamieson, B. F. Jenness, C. E. Jumper, Harvey Kinard, Sam King, James W. Laws, Harry Leigh and T. C. Liddell.—*Malvina Spearman.*

MISCELLANY

THE SCHOOL OF THE MEDICAL SOCIETY

Every physician in New Jersey is instructed and trained in two schools:

First, his *compulsory* training in the medical school and in the hospital interneship. This instruction is 95% in *scientific* medicine, with scant reference to the *administrative* phase of medicine.

Second, his *voluntary* training in *administrative* medicine, which he gets in the school of the county medical society and the state society.

The School of the County Society

The county medical society is essentially a *school of research* along three lines:

1. Making surveys of local medical needs.
2. Planning to supply those needs.
3. Instructing and inspiring local officials and welfare organizations to do their part in supplying local medical needs.

The Faculty of the School of the County Society

The faculty of the school of the county society consists of its officers and its committee chairmen.

The assistants to the faculty are the members of the several committees. From one-quarter to one-third of the members of the county societies are enrolled in the faculties, and as active research workers of the state and the county societies serv-

ing on committees. Count them and prove the truth of this statement.

The importance of the schools of the state and county medical societies is shown by the use of the term *faculty* to denote the members of the medical profession in the call to form The Medical Society of New Jersey in 1766. The term is repeated in the record of the meeting of May 1, 1776, and again on May 12, 1818. The name of the Medical Society of the State of Maryland is still "The Medical and Chirurgical Faculty of Maryland."

Text-Books

The *County Bulletins* and the *State Journal* are the essential text-books from which *all the members* of the county society may learn of the activities of the society whether or not they attend the meetings and hear the *verbal* reports.

Discussions and Decisions

The services of the editors of County Society Bulletins and the reporters of the State Journal are both honorable and essential. The subjects with which they deal may be considered under two headings:

1. Discussions.
2. Decisions.

Discussions and progress reports are always important items of current interest, for they reveal what the members are thinking about, even if definite decisions are not reached.

The annual index of the State Journal lists every subject of discussion that is contained in the monthly reports of the county reporters, even if the item is only 2 lines in length.

Grades and Advancements

There is a system of grading in the school of the medical society, in which the physician may advance step by step:

First, as a member of a committee of a county society.

Second, as a chairman of a committee.

Third, as an administrative officer.

Fourth, as a member of a committee of the state society.

Fifth, as chairman of a committee of the state society.

Sixth, as an administrative officer of the state society.

The members are expected to advance from grade to grade according to their native ability and their experience. There is always an opportunity for a member to advance to a higher position of research and teaching, thereby enlarging his own field of usefulness, and also giving another man an opportunity to perform an honored service on the faculty of the school of the medical society. —*Jour. Med. Soc. N. J.*

NATIONAL PHYSICIANS' COMMITTEE FOR EXTENSION OF MEDICAL SERVICE

When Mr. Frank Gannett, the well known newspaper editor of New York state and the inspiration of the National Committee to Uphold Constitutional Government, allowed his name to be proposed as presidential candidate for the Republican party, the non-partisan character of this committee became lost. The Physicians' Committee for Free Enterprise in Medicine, which was closely associated with the Gannett committee, lost thereby its non-partisan character. For this reason, a group of prominent physicians formed a new committee for Free Enterprise in Medicine in a strict-Committee for the Extension of Medical Service, to carry on the activities of the Physicians' Committee for Freen Enterprise in Medicine in a strictly non-partisan way.

Dr. Edward H. Cary, of Dallas, former president of the A. M. A., is chairman of the new committee. Dr. Austin Hayden, of Chicago, is secretary, and Dr. N. S. Davis, III, of Chicago, is treasurer. The other members of the National committee are: Dr. Irvine Abell, Louisville; Dr. F. F. Borzell, Philadelphia; Dr. John A. Hartwell, New York; Dr. Roger I. Lee, Boston; Dr. A. McMahon, St. Louis; Dr. E. H. Skinner, Kansas City; Dr. W. F. Braasch, Rochester, and Dr. C. B. Wright, Minneapolis.

The purposes of this national committee are the making more widely available the services, more generally known the achievements, and safeguarding the independence of American medicine.

When one considers the high plane of medicine in the United States, the low mortality and morbidity in its population, and the general availability of medical care, there seems to be little excuse for the determined efforts being displayed to revolutionize medical practice in this country. Propaganda in its worst form is being fostered, even by the federal government, through lay magazines, the press and the radio in an effort to discredit the medical profession. There is need for this new national committee of physicians to operate in a national sphere, as our state medical associations are doing within state borders, to bring the truth to the public and to do everything possible to maintain free initiative in medicine for the good of the public.

A small group of physicians from throughout the state met in St. Paul, November 4, at the call of Dr. F. J. Savage, to hear Mr. John M. Pratt, executive administrator of the new National Physicians' Committee, explain the objectives of this new committee. Mr. Pratt resigned his former position with the Gannett committee and will take part in meetings all over the country similar to the St. Paul meeting, which was the first.

Dentists, pharmacists and other allied groups, interested laymen, as well as physicians, will be given the opportunity to support this nationwide committee by becoming members and making any contributions they are able. The purposes of this national committee supplement and in no way conflict with the activities of the A. M. A. It is not generally understood that the propaganda and legislative activities of the A. M. A. are limited, inasmuch as its main function is the scientific betterment of its members. If any considerable part its activities were devoted to legislative affairs, the organization would be subject to the in-

come tax according to the regulations of the powers that be. —*Minn. Med.*

TUBERCULOSIS, GREAT DESTROYER

Down through the ages tuberculosis has been recognized as "The Great Destroyer." As "Captain of the Men of Death," it has stalked through every land and every age, showing no respect to color, race or creed.

But, while tuberculosis is no respecter of persons, it does respect certain conditions. Knowledge of this fact has enabled us intelligently to shape our programs of prevention, control and treatment of this dreaded enemy of mankind.

Centuries of observation and study, decades of clinical and laboratory research, thousands of human lives and millions of dollars have gone into the making of the great tuberculosis control program as we know it today. And we are grateful for every contribution that has come to us through the years.

The tuberculosis control program is no longer a blind guess at what should or should not be done; we can now feel assured that it rests on a sound scientific clinical and epidemiological foundation. Koch's postulates still stand, and Trudeau's contribution placed the rest treatment, including surgical procedures, on a logical footing that has successfully withstood criticism and stimulated concentrated efforts by far-sighted groups from all parts of the world. Today we can truly say that the practical application of our knowledge in tuberculosis control can successfully bring the ravages of this age-old destroyer to an almost insignificant low figure in a comparatively short period of time.

The crying need of our day is for physicians and laymen, educators, parents and pupils, civic and social groups, law makers, public servants, and, in short, every citizen of our state and nation, to join the crusade against this age-old enemy—tuberculosis.—*Bull. Kentucky Dept. of Health.*

BOOK NOTES

DIAGNOSTIC SIGNS, REFLEXES AND SYNDROMES (Standardized), by Wm. Egbert Robertson, M. D., F. A. C. P., Visiting Physician, Medical Division, Philadelphia General Hospital; Visiting Physician, St. Luke's and Children's Hospital and Northwestern Hospital; and Harold F. Robertson, B. S., M. D., F. A. C. P., Instructor in Medicine, University of Pennsylvania; Assistant Visiting Physician, Medical Division, Philadelphia General Hospital, and Methodist Hospital. Pp. 309. Fabrikoid. $3.50. With thumb index. Philadelphia, F. A. Davis Company. 1939.

One of the most pernicious addictions of an otherwise intelligent profession is the assignment of men's names to portions of the anatomy, to syndromes and diagnostic signs. The practice is strictly unscientific, productive of confusion and serves only to tickle the foolish vanity of the original describer. It is to be regretted that the great mass of such nondescriptive terms has at last made necessary the publication of a catalogue which endeav-

SILVER PICRATE *Wyeth's*

has shown a

CONVINCING RECORD OF EFFECTIVENESS *in* ACUTE ANTERIOR URETHRITIS

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*"Treatment of Acute Anterior Urethritis with Silver Picrate," Knight and Shelanski, AMERICAN JOURNAL OF SYPHILIS, GONORRHEA AND VENEREAL DISEASES, Vol. 23, No. 2, pages 201-206, March, 1939.

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Children . . .	KARO provides 60 calories per tablespoon, added to foods and fluids, when the child fails to gain in weight on an adequate diet or his vitality is depleted during convalescence.
Adolescents . .	KARO is invaluable with each meal to help fulfill the enormous energy requirements of adolescence. Accessory meals may be prescribed with advantage and KARO added to foods and fluids.
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ors to completely index and define all the known sops to vanity now in use. Regrettable though its necessity may be, this book certainly fills a crying need in medicine today.—M. P. S.

PRIMER OF ALLERGY, by Warren T. Vaughan, M. D., Richmond, Virginia. Pp. 140, including index. Cloth. Illustrations by John P. Tillery. St. Louis, The C. V. Mosby Co., 1939. Price $1.50.

Any physician knows that, in treating chronic diseases such as allergy or diabetes, he is apt to show best results in the patient who knows enough about his disease to intelligently cooperate with the directions and regime prescribed for him. At the same time a busy practitioner can hardly go into minute details with each patient that comes his way.

Happily books like this solve the dilemma neatly. Study of this book will inform one's allergy patients much more intelligently and completely than any other method known. It should not be difficult to keep the patient interested in his own disease, but at times boredom does come. This book should go far toward maintaining the patient's interest in following his physician's directions. The allergist could well keep a few of these volumes on hand for loaning to his patients.—M. P. S.

PRACTICE OF MEDICINE, by Jonathan Campbell Meakins, M. D., LL. D., Professor of Medicine and Director of the Department of Medicine, McGill University; Physician-in-Chief, Royal Victoria Hospital, Montreal; Fellow of the Royal Society of Edinburgh; Fellow of the Royal Society of Canada; Fellow of the Royal College of Physicians, London; Fellow Royal College of Physicians, Edinburgh; Fellow Royal College of Physicians, Canada; Fellow American College of Physicians. Pp. 1413, including index. Illustrations, 521, including 43 in color. Fabrikoid. Second edition. St. Louis, The C. V. Mosby Co., 1938.

The distinguished author of this excellent textbook was educated and trained in the orthodox, classical manner. After years of experience as a clinician and teacher, he decided that it was necessary to revolutionize or modernize many of the concepts of classical medicine. The result is a book in which more emphasis is placed on the history of illness, functional pathology, etiology, prevention and cure, and less emphasis on morbid anatomy, bacteriology and descriptions of individual symptoms. The first edition, which was published in 1936, has been accepted as the standard textbook in many medical schools.

As a result of friendly criticism and of a desire to record some of the recent, important advances in medicine the author has revised much of the earlier work. Some of the illustrations have been removed and new ones added. The x-ray pictures, in general, are excellent and add greatly to the descriptive value of the text. There are some 521 illustrations including 43 in color. Our only criticism of the book is that some of the color plates are unnecessarily vivid.

In the second edition appendicitis has been included under diseases of the gastro-intestinal system, having been omitted in the first edition. Several new conditions have been amplified or added,

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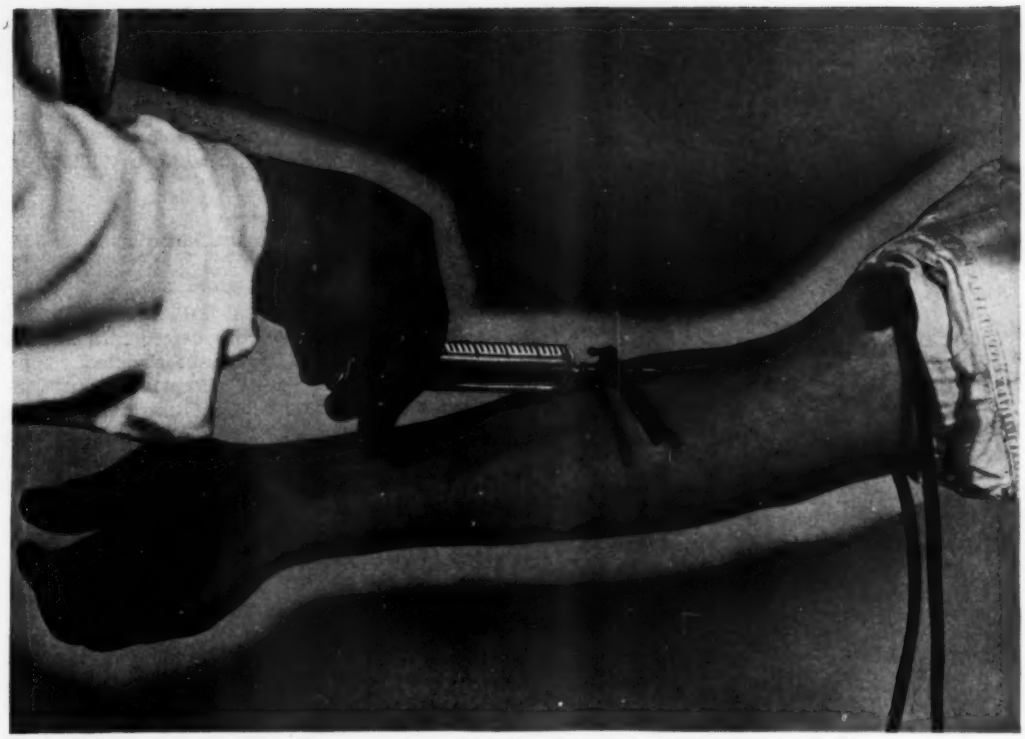

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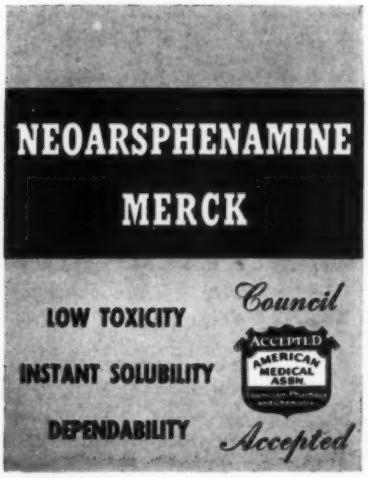

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ACCEPTED FOODS, AND THEIR NUTRITIONAL SIGNIFICANCE, a publication of the Council on Foods of the American Medical Association. Cloth, price $2.00 postpaid. Pp. 512; Chicago: American Medical Association, 1939.

ACCEPTED FOODS, AND THEIR NUTRITIONAL SIGNIFICANCE contains descriptions and detailed information regarding the chemical composition of more than 3,800 accepted products, together with a discussion of the nutritional significance of each class of foods. The book provides also the Council's opinion on many topics in nutrition, dietetics and the proper advertising of foods.

This book is a reference work for persons interested in securing authoritative information about foods, especially the processed and fabricated foods which are widely advertised. The accepted products are classified in various categories; fats and oils; fruit juices, including tomato juice; canned and dried fruit products; grain products; preparations used in the feeding of infants; meats, fish and sea foods; milk and milk products other than butter; foods for special dietetic purposes; sugars and syrups; vegetables and mushrooms; and unclassified and miscellaneous foods, including gelatin, iodized salt, coffee, tea, chocolate, cocoa, chocolate flavored beverage bases, flavoring extracts, dessert products, baking powder, cream of tartar, baking soda, cottonseed floor. There is a subject index as well as an index of all the manufacturers and distributors of food products that stand accepted by the Council on Foods.

PSYCHOBIOLOGY AND PSYCHIATRY. By Wendel Muncie, M. D. With a foreword by Adolf Meyer, M.D., LL.D., Sc.D. Cloth. Pp. 739, with 69 illustrations. St. Louis: C. V. Mosby Company, 1939 $P.00.

The author has undertaken an extremely difficult task in writing this textbook on psychobiology. He has attempted to give concrete, verbal form to what is essentially an attitude. The psychobiologists, inspired originally mainly by Adolf Meyer, hold to no fixed "school of thought." Both in their observations of human behavior and in their efforts at rehabilitation of maladjusted individuals they utilize whatever they consider useful from the various schools of psychiatry and psychology. Their particular contribution lies in the emphasis which they place on the individualization of approach to each case, treating each person as an indivisable body-mind—a living, changing, reacting part of his external and internal environment.

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look on the practice of medicine. But the esoteric terminology might well discourage any except genuine students, and psychiatrists. The vocabulary of the psychobiologists (ergasiologists) is not the standard nomenclature of psychiatry. They have a coined vocabulary which they use in addition to the sufficiently bewildering "jargon" of psychiatry. Under such circumstances the author has not been as careful as he should have been to define each new term the first time it was used.

Psychobiology is so resistant to artificially set up "norms' and classificatory "systems" that it is difficult for an outsider to grasp and utilize its ideas as presented in a text. It is a manner of psychiatric approach that can scarcely be learned except through a personal apprenticeship to a psychobiologist. Their very reluctance to classify and delimit and systematize makes the textbook difficult reading and bewildering teaching. It lacks the almost essential teaching tool of a cohesive skeleton outline on which to hang the separate facts.

Despite its structural weakness the book is a sound exposition of an exceedingly wholesome outlook on the neuroses and psychoses and on human life reactions generally. It is replete with illustrative case histories and illuminating bits on the manner of approaching human problems.

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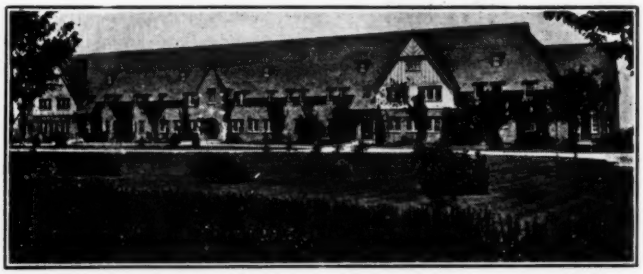

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one who is not thoroughly familiar with the progress of recent psychiatric thought.

The section devoted to treatment could be read by every medical student and practicing physician for their own soul's good and the benefit of their patients.

A few simple changes might help to increase easy readability. A glossary of terms ought to be added. An outline could be included, giving in parallel columns older terminology and the more or less synonymous coined names of ergasiology. The slight inevitable inaccuracies would probably not be as great as those now left in the minds of confused readers, and it would facilitate their orientation. The illustrative diagrams and specimen charts are not always self-explanatory. The reader would be helped by more carefully descriptive legends to accompany them.

This book deserves a more widely disseminated reception than it is likely to get.—*I. M. E.*

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